

OAKLAND UNIVERSITY

Volume 3

School of Health Sciences (SHS)
School of Business Administration (SBA)
School of Education and Human Services (SEHS)
School of Engineering and Computer Science (SECS)
School of Nursing (SON)
General Education Requirements

2023-2024

UNDERGRADUATE CATALOG

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All data in this catalog reflect information as it was available at the publication date. Oakland University reserves the right to revise all announcements contained in this publication at its discretion and to make reasonable changes in requirements to improve or upgrade academic and non-academic programs.

The academic requirements described in this catalog are in effect fall semester 2023 through summer semester 2030. Undergraduate students admitted to a degree-granting program may use provisions in this catalog to meet requirements within that time frame.

School of Health Sciences

The School of Health Sciences provides an exceptional environment of collaborative, academic and clinical learning that helps transform students into leaders impacting the health needs of our communities in diverse wellness and health-related practices.

The School of Health Sciences is passionate about providing students with the best science-based health education, high-quality academic preparation, interdisciplinary teaching and excellence in instruction in the classroom and clinical laboratory.

School Honors

Honors are awarded to School of Health Sciences graduating students who have earned a GPA of 3.50 or above in courses completed in the School.

Admission Requirements

Our programs with additional admissions requirements may be considered on a competitive basis if the balance between applicants and available instructional resources requires such action to maintain the academic integrity of the program.

Department of Clinical and Diagnostic Sciences

The Department of Clinical and Diagnostic Sciences (CDS) offers programs designed to prepare students for professional opportunities in a variety of settings. Graduates may find employment in hospital or commercial clinical laboratories, research laboratories or public health facilities. Positions within biomedical corporations, including research and development, quality assurance and sales or service may also be prospective sources for employment. Furthermore, because it meets basic academic requirements, the CDS curricula provide excellent preparation for entry into post-baccalaureate professional programs including physician assistant, medicine, pharmacy, dentistry, osteopathy, and veterinary medicine.

The Clinical and Diagnostic Sciences Department at Oakland University offers several specializations including diagnostic medical sonography, histotechnology, medical laboratory science, nuclear medicine technology, pre-clinical professions, pre-pharmacy, pre-physician assistant and radiologic technology.

Admission to Specializations

Students are admitted to the CDS major directly from high school or by transfer from other colleges or universities. Students have the option of earning the CDS degree by completing a clinical specialization internship (described below in "admission to clinical specialization internship"). A medical laboratory science internship is completed post-baccalaureate. Acceptance into the internship programs is competitive and based on grade point average, personal interview, and letters of recommendation. The application process for each of the specializations is unique. Students are advised to read carefully about

their chosen specialization. In some cases, it is the policy of the affiliate institution that a criminal background check, at the student's expense, is required for acceptance into a clinical program.

All students should select their desired area of specialization by the end of sophomore year, since the coursework in the junior year is different for each specialization. The actual acceptance into a student's chosen clinical program (specialization) shall define specialization standing for course prerequisites and professional course requirements. The junior and senior year curricula will vary depending upon the specialization.

Pre-Clinical Professions Specialization

Students who wish to pursue post-baccalaureate degrees (MD, DO, PA, PhD, etc.) may complete the Clinical and Diagnostic Sciences Pre-Clinical Professions Specialization. These students may still be eligible to apply for clinical internship opportunities either before or after graduation.

Clinical and Diagnostic Sciences, B.S.

Clinical and Diagnostic Sciences provides an experiential human-based education in biomedical, imaging, and clinical sciences, and is built upon the foundations of biology and chemistry. The Bachelor of Science in Clinical and Diagnostic Sciences degree program offers specializations in Diagnostic Medical Sonography, Medical Laboratory Science, Histotechnology, Radiologic Technology, Nuclear Medicine Technology, Pre-clinical Professions, Pre-pharmacy Sciences, and Pre-Physician Assistant. Using clinical perspectives to develop critical thinking, teamwork, and communication skills, students are prepared for a variety of health careers or the pursuit of advanced graduate education (MD, DO, PA, PharmD, DDS, DVM, etc.).

Students pursuing a Clinical and Diagnostic Sciences (CDS) degree are required to complete a minimum of 120 credits and fulfill the requirements described below.

Requirements for clinical and diagnostic sciences, B.S.

1. General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the CDS core curriculum

3. Complete the specialization course requirements specified under one of the following specializations:

- Clinical and Diagnostic Sciences, B.S., Specialization in Diagnostic Medical Sonography
- Clinical and Diagnostic Sciences, B.S., Specialization in Histotechnology

- Clinical and Diagnostic Sciences, B.S., Specialization in Medical Laboratory Science (MLS)
- Clinical and Diagnostic Sciences, B.S., Specialization in Nuclear Medicine Technology
- Clinical and Diagnostic Sciences, B.S., Specialization in Radiologic Technology
- Clinical and Diagnostic Sciences, B.S., Specialization in Pre-clinical professions for medicine, dentistry, optometry, and veterinary medicine
- Clinical and Diagnostic Sciences, B.S., Specialization in Pre-Physician Assistant
- Clinical and Diagnostic Sciences, B.S., Specialization in Pre-Pharmacy

4. Complete all CDS major program course-work with a cumulative GPA of 2.80 or higher

Clinical and Diagnostic Sciences core curriculum courses

- BIO 1200 - Biology I (4)
- BIO 2100 - Human Anatomy (4)
- BIO 2101 - Human Anatomy Laboratory (1)
- BIO 2600 - Human Physiology (4)
- CDS 2010 - Careers in Clinical and Diagnostic Sciences (1)
- CDS 2070 - Health Care Systems Around the World (3)
- CDS 2100 - Medical Terminology (1)
- CDS 2250 - Clinical Laboratory Theory and Techniques (2) (not required for Pre-Physician Assistant, RAD, NMT or DMS specialization)
- HS 4500 - Ethics in Health Care (4)
- STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2222 - Statistical Methods for Biology (4) or STA 2226 - Applied Probability and Statistics (4)

Clinical and Diagnostic Sciences, B.S., Specialization in Diagnostic Medical Sonography

A sonographer works under the guidance of radiologists in a variety of health-care settings and must use advanced critical thinking skills to help assess function and determine the presence of disease processes in the human body.

A sonographer is required to operate a variety of complex ultrasound equipment as well as numerous ancillary devices in order to perform sonographic procedures. Sonographers must integrate complex knowledge and advanced technical skills in the imaging of internal structures and they must apply knowledge of advanced anatomy and physiology in the performance of their duties. Individuals interested in this career must be able to communicate effectively with patients and other health-care professionals. The sonographer must display compassion, competence and concern in order to meet the special needs of the patient. Direct patient contact is required while performing this job.

Admission to clinical specialization internship

To be accepted into a diagnostic medical sonography (DMS) affiliate program, students must submit a formal application for each program for which they seek consideration.

This degree is affiliated with the Henry Ford Health System DMS Program and Ascension Providence Hospital, Southfield Campus, DMS Program. In addition to submitting a formal application, students may also be required to interview, acquire and maintain CPR certification for Health Care Providers, job shadow in sonography, obtain clinical medical experience, and/or take an admissions exam. Students must have a minimum of a 2.8 overall GPA to be considered for acceptance, however it is recommended that students have at least a 3.0 overall GPA.

Acceptance into a DMS program is competitive and not guaranteed. Acceptance is determined by each DMS program affiliate and is based on prerequisite course-work GPA, specific course grades, interview, previous work experience, letters of recommendation, and documentation of required patient care and shadowing experience. Students who are accepted to an accredited DMS program will receive all academic and clinical education from instructors employed by that program. Grades while attending the DMS hospital will be reported to Oakland for their OU transcript as pass/fail, however letter grades will be utilized on the program transcript. Students should check the clinical affiliate program's websites for exact application dates, prerequisite requirements, and grade requirements.

Clinical Rotations

Clinical rotations will be determined by their affiliated hospitals and clinics. Students will be awarded the degree upon successful completion of all university and hospital affiliate program graduation requirements. Grades while attending the DMS hospital programs will be reported to Oakland for their transcript as pass/fail, however letter grades will be utilized on the program transcript.

Other Program Affiliate Requirements

Upon acceptance into a clinical affiliate program, all students must pass a mandatory background check and health screening. In order to protect patients and provide a safe environment for students, staff, and the public, all students are required to have up-to-date immunizations, including the seasonal flu vaccine and the COVID-19 vaccine. If an applicant fails to comply with the immunization policy, fails the mandatory health screen and/or background check, the applicant's acceptance into the program will be rescinded. Vaccine exemption forms may be considered, but it will be determined by the program affiliate. Students are required to obtain and maintain their own medical insurance coverage for the duration of the DMS program.

Grade point policy

Students in the DMS professional specialization whose cumulative grade point average falls below a 2.80, or those who do not meet the affiliate DMS program grade requirements, are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Diagnostic medical sonography specialization professional course requirements

Students pursuing the diagnostic medical sonography specialization must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization:

- BIO 4100 - Advanced Visceral Human Anatomy (4)
- CDS 4010 - Human Pathology (4)
- PHY 1080 - Principles of Physics I (4)
- PHY 1090 - Principles of Physics II (4)
- WRT 1060 - Composition II (4)

Degree completion at Henry Ford Health System

To be awarded the specialization in diagnostic medical sonography at Henry Ford Health System, students must complete the following courses:

Henry Ford - September start with August graduation (24-month program - 66 credits)

- DMS 3110 - HF Diagnostic Medical Sonography 1 (12)
- DMS 3120 - HF Diagnostic Medical Sonography 2 (12)
- DMS 3130 - HF Diagnostic Medical Sonography 3 (9)
- DMS 4110 - HF Diagnostic Medical Sonography 4 (12)
- DMS 4120 - HF Diagnostic Medical Sonography 5 (12)
- DMS 4130 - HF Diagnostic Medical Sonography 6 (9)

Degree completion at the Ascension Providence Hospital

To be awarded the specialization diagnostic medical sonography at Ascension Providence Hospital, students must complete the following courses:

Ascension - January start with October graduation (21-month program - 60 credits)

- DMS 3210 - ASC Diagnostic Medical Sonography 1 (12)

- DMS 3220 - ASC Diagnostic Medical Sonography 2 (9)
- DMS 3230 - ASC Diagnostic Medical Sonography 3 (12)
- DMS 4210 - ASC Diagnostic Medical Sonography 4 (12)
- DMS 4220 - ASC Diagnostic Medical Sonography 5 (12)
- DMS 4230 - ASC Diagnostic Medical Sonography 6 (3)

Clinical and Diagnostic Sciences, B.S., Specialization in Histotechnology

Histotechnologists perform a variety of diagnostic and research procedures in the anatomic sciences. During the clinical internship, students learn histological techniques that involve processing, sectioning and staining of tissue specimens that have been removed from humans or animals by biopsy, surgical procedures or autopsy. Advanced techniques include muscle enzyme histochemistry, electron microscopy, immunofluorescence and immunoenzyme procedures, molecular pathology techniques including hybridization and image analysis, and medical photography. Students may apply for specialization standing in histotechnology after completing the CDS core curriculum and acceptance to a hospital internship. Application to the hospital-based internship is typically made during the winter semester of the sophomore year. The junior year consists of the prescribed professional course requirements at Oakland University. The senior year consists of a 12-month internship at the Beaumont Health School of Histotechnology. Acceptance into the internship program is competitive and based on grade point average, personal interview and letters of recommendation.

Admission to clinical specialization internship

To be accepted in a clinical specialization internship, students must submit a formal application for each program for which they seek consideration. Applications for the histotechnology internship program are processed in the winter semester of the sophomore year (or winter semester following completion of the Clinical and Diagnostic Sciences core curriculum). It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for exact application dates.

Grade point policy

Students in the Histotechnology professional specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.

In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Histotechnology specialization professional course requirements

Students pursuing a specialization in histotechnology must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization (a minimum of 120 credits required).

- BIO 3140 - Histology (4)
- BIO 3141 - Histology Laboratory (1)
- CDS 4000 - Medical Genetics (4)
- CDS 4010 - Human Pathology (4)
- CDS 4020 - Molecular Diagnostics (3)
- CDS 4140 - Hematology/Hemostasis I (3)
- CDS 4230 - Medical Immunology (3)
- CDS 4250 - Medical Biochemistry (4)
- CDS 4300 - Clinical Microbiology (4)
- CDS 4350 - Clinical Parasitology, Mycology, Virology (3)
- CHM 1440 - General Chemistry I (4)
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)
- HT 4010 - Basic Histotechnique and Histochemical Staining Methods (12)
- HT 4020 - Basic Electron Microscopy (3)
- HT 4030 - Immunohisto-Cytochemistry (5)
- HT 4040 - Special Techniques (4)

Clinical and Diagnostic Sciences, B.S., Specialization in Medical Laboratory Science (MLS)

Medical Laboratory Scientists perform diagnostic tests that provide important information to determine the presence, extent, or absence of disease as well as data to evaluate the effectiveness of treatment. They work with all types of body tissues and fluids, from blood and urine to cell samples. Major areas of specialization within the laboratory include hematology, clinical chemistry, microbiology, serology, urinalysis, immunohematology (blood bank) and molecular diagnostics.

Students may apply for specialization standing in MLS after completing the CDS core curriculum, generally at the end of the sophomore year. The junior and senior years consist of the prescribed professional course requirements at Oakland University. A clinical internship is required for national certification as a medical laboratory scientist (certification required for most hospital and private laboratory employment positions). Oakland University is affiliated with the following accredited MLS clinical programs: Detroit Medical Center University Laboratories; Ascension St. John Hospital; and Beaumont Health.

Admission to clinical specialization internship

To be accepted in a clinical specialization internship, students must submit a formal application for each program for which they seek consideration. Applications for the MLS internships are processed during the summer prior to the senior year. Internships are between six and ten months in length (depending on the clinical site), and are done post-graduate. It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for specific application dates. Acceptance into the internship program is competitive and based on grade point average, personal interview, and letters of recommendation.

Grade point policy

Students in the professional medical laboratory science specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.

In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Note

Some clinical programs may require MTH 1441. Check the individual clinical programs for current requirements.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Medical laboratory science specialization professional course requirements

Students completing the Clinical and Diagnostic Sciences, B.S. with a specialization in Medical Laboratory Science must complete a minimum of 120 credits and satisfy all University degree requirements for the major in Clinical and Diagnostic Sciences and take the following courses:

- PHY 1080 - Principles of Physics I (4)
- PHY 1090 - Principles of Physics II (4)
- CDS 4000 - Medical Genetics (4)
- CDS 4020 - Molecular Diagnostics (3)
- CDS 4140 - Hematology/Hemostasis I (3)
- CDS 4150 - Hematology/Hemostasis Laboratory I (1)
- CDS 4160 - Hematology/Hemostasis II (4)
- CDS 4170 - Hematology/Hemostasis Laboratory II (1)
- CDS 4230 - Medical Immunology (3)
- CDS 4240 - Immunohematology (3)
- CDS 4241 - Immunohematology Laboratory (1)
- CDS 4250 - Medical Biochemistry (4)
- CDS 4270 - Clinical Chemistry (4)
- CDS 4280 - Clinical Chemistry Laboratory (1)
- CDS 4300 - Clinical Microbiology (4)
- CDS 4310 - Clinical Microbiology Laboratory (1)
- CDS 4350 - Clinical Parasitology, Mycology, Virology (3)
- CDS 4360 - Clinical Parasitology, Mycology, Virology Lab (1)
- CDS 4400 - Clinical Correlations (3)
- CHM 1440 - General Chemistry I (4)
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)

- Two (2) credits of free electives can be used to satisfy the 120 degree credit requirement. Suggested elective course(s): HS 1000

Note

Some clinical programs may require MTH 1441. Check the individual clinical programs for current requirements.

Clinical and Diagnostic Sciences, B.S., Specialization in Nuclear Medicine Technology

Nuclear Medicine Technologists utilize small amounts of radioactive materials for diagnosis, therapy and research. Diagnosis can involve organ imaging using gamma counters to detect radioactive material administered to the patient or analysis of biologic specimens to detect levels of various substances. Therapeutic doses of radioactive materials are also given to patients to treat specific diseases.

Admission

The Nuclear Medicine Technology (NMT) specialization is available to School of Health Sciences students through a partnership between the Department of Clinical and Diagnostic Sciences, and the Nuclear Medicine Institute at the University of Findlay (Findlay, Ohio). Admission to the University of Findlay Nuclear Medicine Technology program is through a competitive admissions process. Once accepted, Oakland students will need to: 1) apply to be a guest student at the University of Findlay while they are in the Nuclear Medicine program; 2) send a letter of acceptance to their academic adviser; and 3) register for classes and pay tuition through the University of Findlay.

The Findlay program has two start dates per year, in August and January. Application for the clinical program is made during the junior year and should be made 9-12 months prior to the desired beginning class date (November 1st for an August start date or April 1st for the following January start date). The senior year of study consists of a 12-month program, one semester on the University of Findlay campus, and two semesters of full-time clinical education at a clinical affiliate. Currently available clinical affiliates in the Detroit metropolitan area include Children's Hospital of Michigan, Detroit; Harper Hospital, Detroit; University of Michigan Health System, Ann Arbor; and the Veterans Affairs Ann Arbor Healthcare System, Ann Arbor. The Findlay NMT program has over 60 clinical affiliates, in 10 states, so additional options are available if the student so desires. Upon completion of the NMT program at the University of Findlay, the student will receive their B.S. in Clinical and Diagnostic Sciences, Specialization in NMT, from Oakland University. Students are responsible for sending their final, official transcripts from Findlay University to the records office at Oakland University at the end of their final semester in order to confer the degree. Acceptance into the University of Findlay Nuclear Medicine Technology program is competitive and based on grade point average, personal interview and letters of recommendation.

Grade point policy

Students in the nuclear medicine technology specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.

In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Nuclear Medicine Technology Specialization professional course requirements

Students pursuing a specialization in nuclear medicine technology must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization (a minimum of 120 credits required).

- COM 2000 - Public Speaking (4)
- CDS 4010 - Human Pathology (4)
- CHM 1440 - General Chemistry I (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- MTH 1441 - Precalculus (4)
- PHY 1080 - Principles of Physics I (4)

Degree completion at the Nuclear Medicine Institute, University of Findlay, OH

To complete the nuclear medicine technology specialization, students must complete the following courses at the University of Findlay

- NMED 406 Molecular Imaging Mathematics (3)
- NMED 416 Molecular Imaging Physics (2)
- NMED 425 Molecular Imaging Radiobiology (1)
- NMED 435 Molecular Imaging Radiation Protection (2)
- NMED 445 Molecular Non-Imaging Procedures (3)
- NMED 455 Molecular Imaging Procedures (5)
- NMED 462 Radionuclide Therapies (1)
- NMED 465 Radiochemistry and Radiopharmaceuticals (3)

- NMED 472 Molecular Imaging Instrumentation (3)
- NMED 475 Molecular Imaging Spect (1)
- NMED 477 Molecular Imaging Pet (1)
- NMED 485 Clinical Nuclear Medicine I (12)
- NMED 486 Clinical Nuclear Medicine II (12)
- NMED 487 Molecular Imaging Capstone (1)

Clinical and Diagnostic Sciences, B.S., Specialization in Pre-clinical professions for medicine, dentistry, optometry, and veterinary medicine

The Bachelor of Science degree in Clinical and Diagnostic Sciences (CDS) provides excellent preparation for admission to a variety of professional schools. For a student desiring greater flexibility in planning their academic program, the Pre-Professional Specialization professions specialization may be of interest. Students should consult with the CDS adviser as to the academic option most suitable for the individual student's academic career goals.

Academic Advising

All students are required to meet with their professional academic adviser in the School of Health Sciences at least once a year to review progress toward their degree.

Pre-Clinical Professions Specialization course requirements

Students pursuing a specialization in pre-clinical professions must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization (a minimum of 120 credits required):

- PHY 1010 - General Physics I (4) and PHY 1100 - General Physics Lab I (1)
- PHY 1020 - General Physics II (4) and PHY 1110 - General Physics Lab II (1)
- CHM 1440 - General Chemistry I (4)
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)

- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- CDS 4000 - Medical Genetics (4)
- CDS 4050 - Pharmacology (3)
- CDS 4140 - Hematology/Hemostasis I (3)
- CDS 4230 - Medical Immunology (3)
- CDS 4250 - Medical Biochemistry (4)
- CDS 4300 - Clinical Microbiology (4) or CDS 3300 - Microbiology of Infectious Diseases (3)
- CDS 4310 - Clinical Microbiology Laboratory (1) or CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)

And a minimum of 12 elective credits from the following courses:

- BIO 1300 - Biology II (4)
- BIO 3140 - Histology (4) and BIO 3141 - Histology Laboratory (1)
- BIO 3620 - Medical Physiology (4)
- BIO 4100 - Advanced Visceral Human Anatomy (4)
- BIO 4112 - Advanced Musculoskeletal Human Anatomy (4)
- BIO 4620 - Advanced Human Physiology (4)
- BIO 4622 - Endocrinology (4)
- CDS 4010 - Human Pathology (4)
- CDS 4020 - Molecular Diagnostics (3)
- CDS 4150 - Hematology/Hemostasis Laboratory I (1)
- CDS 4160 - Hematology/Hemostasis II (4)
- CDS 4170 - Hematology/Hemostasis Laboratory II (1)
- CDS 4270 - Clinical Chemistry (4) and CDS 4280 - Clinical Chemistry Laboratory (1)
- CDS 4350 - Clinical Parasitology, Mycology, Virology (3) and CDS 4360 - Clinical Parasitology, Mycology, Virology Lab (1)
- CDS 4600 - Molecular Mechanisms of Bacterial Pathogenesis (3)
- CDS 4929 - Directed Readings (1 TO 3)

- CDS 4995 - Directed Research (1 TO 4)
- HS 1000 - Careers in Health (1)
- HS 3430 - Sociology of Health and Medicine (4)
- MTH 1441 - Precalculus (4)
- MTH 1554 - Calculus I (4)
- NTR 2500 - Human Nutrition and Health (3)
- NTR 4100 - Nutrition and Lifecycles (4)
- PH 3000 - Introduction to Public Health (3)
- PHL 3500 - Clinical Ethics (4)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4)
- PSY 2410 - Introduction to Clinical Psychology (4)
- PSY 2420 - Introduction to Abnormal Psychology (4)
- SOC 3230 - Alcohol, Drugs and Society (4)
- SOC 3430 - Sociology of Health and Medicine (4)
- WHP 3250 - Issues in Women's Health (4)
- WRT 1050 - Composition I (4)
- or additional electives as approved. Some prerequisite courses may not count as electives, please consult with the professional academic adviser in the School of Health Sciences.

Clinical and Diagnostic Sciences, B.S., Specialization in Pre-Pharmacy

Within the Department of Clinical and Diagnostic Sciences, students may choose to pursue a Bachelor of Science in Clinical and Diagnostic Sciences degree with a specialization in Pre-pharmacy Sciences. This specialization prepares students to meet the academic prerequisites necessary to be considered for admission to Doctor of Pharmacy (PharmD) programs.

Through coursework, labs and experiential learning opportunities, students will develop skills to prepare and dispense prescriptions, ensure medicines and doses are correct, prevent harmful drug interactions, and counsel patients on the safe and appropriate use of their medications. Pharmacists are medication experts who enhance patient care and promote wellness.

Admission

Students pursuing a Bachelor of Science with a major in Clinical and Diagnostic Sciences (CDS) at Oakland University with a pre-pharmacy specialization may pursue admission to any accredited Doctor of Pharmacy program. Students admitted to an accredited PharmD program must complete their final year of undergraduate coursework at that program and credits earned from courses must be transferred back to Oakland University to complete the requirements for the Bachelor of Science with a major in CDS Clinical and Diagnostic Sciences. It is highly recommended that students consult with the academic adviser prior to enrolling in any of these classes, as completion of coursework does not guarantee admission or completion of the program. Admission to a PharmD program is through a competitive admissions process. Once accepted, Oakland University students will need to: 1) send a letter of acceptance to their academic adviser; and 2) register for classes and pay tuition through the PharmD school; and 3) send official transcripts after the first year (fall/winter semesters) of the PharmD program to Oakland University.

Students not accepted into a PharmD program may complete the degree program outlined below for a Bachelor of Science with a major in CDS Clinical and Diagnostic Sciences.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Pre-Pharmacy specialization professional course requirements

Students pursuing the pre-pharmacy specialization must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization (a minimum of 120 credits required):

- CDS 3300 - Microbiology of Infectious Diseases (3)
- CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)
- CDS 4000 - Medical Genetics (4)
- CDS 4050 - Pharmacology (3)
- CDS 4250 - Medical Biochemistry (4)
- CHM 1440 - General Chemistry I (4)
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- MGT 1100 - Contemporary World Business (4)

- MTH 1554 - Calculus I (4)
- PHY 1010 - General Physics I (4)
- PHY 1100 - General Physics Lab I (1)
- and a minimum of 16 credits of CDS electives (approved non-CDS elective course: HS 1000)

Specialization in Pre-Pharmacy (3+1) Manchester University

Students pursuing a Bachelor of Science with a major in Clinical and Diagnostic Sciences (CDS) at Oakland University with a pre-pharmacy specialization may pursue admission to the Doctor of Pharmacy (Pharm D) at Manchester University.

Manchester University will reserve two (2) seats in each annual cohort of students entering its Doctor of Pharmacy program for qualified students of Oakland University. These students would also qualify for a reserved seat in the Dual Degree PharmD/MS in Pharmacogenomics (PGX) cohort for that entry year. Qualified students must complete the application process for admission to the Manchester Pharmacy program according to the established deadlines.

Specialization in Pre-Pharmacy (3+1) Roosevelt University

Roosevelt University, located just outside of Chicago, has partnered with Oakland University to create an educational pathway for qualified students interested in becoming pharmacists. Beginning the fall of 2022, Oakland University students can complete three years in the School of Health Sciences and enter Roosevelt University's Doctor of Pharmacy program to simultaneously complete their Bachelor of Science at Oakland University and start a PharmD. Benefits of this program include:

- Direct application to Roosevelt University rather than through PharmCAS
- Upon completion of prerequisite coursework student will be eligible to apply for the program
- Waiver of PCAT requirements

The Roosevelt University affiliation is in addition to our previously established Manchester University Doctor of Pharmacy program.

Pre-Pharmacy (3+1) specialization professional course requirements

Students pursuing the pre-pharmacy (3+1) specialization must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization (a minimum of 120 credits required):

- CDS 3300 - Microbiology of Infectious Diseases (3)
- CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)
- CDS 4000 - Medical Genetics (4)
- CDS 4050 - Pharmacology (3)

- CDS 4250 - Medical Biochemistry (4)
- CHM 1440 - General Chemistry I (4)
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- MGT 1100 - Contemporary World Business (4)
- MTH 1554 - Calculus I (4)
- PHY 1010 - General Physics I (4)
- PHY 1100 - General Physics Lab I (1)
- PharmD coursework minimum of 16 credits transferred to Oakland University

Clinical and Diagnostic Sciences, B.S., Specialization in Pre-Physician Assistant

Physician Assistant (PA) practitioners serve a critical role in the delivery of healthcare in the public and private sectors. PAs perform many of the patient care tasks traditionally performed by physicians in diverse practices from family medicine to surgery and orthopedics. They perform complete medical exams, prescribe medications, and counsel patients on health and wellness.

The Pre-Physician Assistant (Pre-PA) specialization in Clinical and Diagnostic Sciences (CDS) allows students to complete the prerequisite classes for entry into most PA programs. Students may enter the Pre-PA program in their freshman year, or transfer into the program from other majors or institutions. There is no application to enter the program. Students must complete four one-credit courses in the Pre-PA curriculum designed to prepare the student for the PA application and field of study. More than one course may be taken concurrently for students transferring into the specialization.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Pre-Physician Assistant specialization professional course requirements

Students pursuing the pre-physician assistant specialization must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization (a minimum of 120 credits required):

- BIO 1201 - Biology Laboratory (1)
- CHM 1440 - General Chemistry I (4) *
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- CDS 2020 - Pre-Physician Assistant Foundations (1)
- CDS 2021 - Practical Applications for the Pre-Physician Assistant (1)
- CDS 2022 - The Pre-Physician Assistant Professional (1)
- CDS 2023 - Pre-Physician Assistant Professionalism Seminar (1)
- CDS 3300 - Microbiology of Infectious Diseases (3) and CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)
- CDS 4000 - Medical Genetics (4)
- CDS 4010 - Human Pathology (4)
- CDS 4050 - Pharmacology (3)
- CDS 4230 - Medical Immunology (3)
- CDS 4250 - Medical Biochemistry (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)
- NTR 2500 - Human Nutrition and Health (3)
- PHY 1010 - General Physics I (4) * and PHY 1100 - General Physics Lab I (1)
- PSY 1000 - Introduction to Psychology (4) *
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4) *
- WHP 3700 - Culture, Ethnicity and Well-being (3)
- WRT 1060 - Composition II (4)
- and eleven (11) credits of CDS electives (approved non-CDS elective HS 1000)

Recommended CDS Electives (Senior year):

- CDS 4020 - Molecular Diagnostics (3)

- CDS 4140 - Hematology/Hemostasis I (3)
- CDS 4150 - Hematology/Hemostasis Laboratory I (1)
- CDS 4270 - Clinical Chemistry (4)
- CDS 4280 - Clinical Chemistry Laboratory (1)
- CDS 4600 - Molecular Mechanisms of Bacterial Pathogenesis (3)
- CDS 4995 - Directed Research (1 TO 4)
- CDS 4996 - Independent Study (1 TO 3)
- PH 3000 - Introduction to Public Health (3)
- PH 4650 - Social Determinants of Health (4)

Note

Note that several required courses satisfy general education requirements. See courses marked with "**"

Clinical and Diagnostic Sciences, B.S., Specialization in Radiologic Technology

A Radiologic (X-ray) Technologist is a professional responsible for the administration of ionizing radiation for diagnostic or research purposes. The radiologic technologist must integrate complex knowledge and advanced technical skills in the imaging of internal structures. Radiologic technologists apply knowledge of anatomy, physiology, positioning and radiographic technique in the performance of their duties.

Individuals interested in a radiography career must be able to communicate effectively with patients and other health care professionals. The radiologic technologist must display compassion, competence and concern in order to meet the special needs of the patient. Direct contact is required when maneuvering the patient into position for various procedures. Radiography is a rewarding career that combines patient care with modern medical technology.

Admission to clinical specialization internship

To be accepted in a clinical specialization internship, students must submit a formal application. Application for the radiologic technology internship program is processed in the winter semester of the sophomore year (or winter semester following completion of the Clinical and Diagnostic Sciences core curriculum) prior to the August start date of each year. Acceptance into the program is competitive and based on the prerequisite math and science grade point average, personal interview, entrance exam score, and letters of recommendation. Applicants are required to have current CPR ("Healthcare Provider") certification through the American Heart Association. Patient contact experience, volunteering with patients and advanced course work are considered favorably in the admissions

process. The didactic course work is completed at Oakland University and the supervised clinical experience in the Radiologic Technology Departments at various Beaumont Health locations.

It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for exact application dates.

Grade point policy

Students in the radiologic technology specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.

In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisors in the School of Health Sciences at least once a year to review progress towards their degree.

Radiologic technology specialization professional course requirements

Students pursuing the radiologic technology specialization must complete the degree requirements for the major in Clinical and Diagnostic Sciences, B.S. and take the following courses for the specialization (a minimum of 120 credits required):

- PHY 1080 - Principles of Physics I (4)
- PHY 1090 - Principles of Physics II (4)
- RAD 3110 - Methods of Patient Care I (2)
- RAD 3310 - Radiologic Physics I (3)
- RAD 3330 - Principles of Radiographic Exposure I (3)
- RAD 3350 - Principles of Radiographic Exposure II (1)
- RAD 3410 - Radiographic Procedures I (4)
- RAD 3420 - Radiographic Procedures II (4)
- RAD 3440 - Radiographic Procedures III (2)
- RAD 3510 - Radiographic Laboratory I (1)
- RAD 3520 - Radiographic Laboratory II (1)
- RAD 4080 - Radiation Biology and Protection (1)
- RAD 4110 - Methods of Patient Care II (1)

- RAD 4310 - Radiologic Physics II (3)
- RAD 4330 - Principles of Radiographic Exposure III (2)
- RAD 4340 - Principles of Radiographic Exposure IV (2)
- RAD 4410 - Radiographic Procedures IV (3)
- RAD 4420 - Radiographic Procedures V (3)
- RAD 4440 - Medical Imaging Practices (4)
- RAD 4510 - Radiographic Laboratory III (1)
- RAD 4520 - Radiographic Laboratory IV (1)
- RAD 4970 - Senior Seminar (2)
- RAD 4960 - Clinical Practicum I (3)
- RAD 4961 - Clinical Practicum II (3)
- RAD 4962 - Clinical Practicum III (3)
- RAD 4963 - Clinical Practicum IV (3)
- RAD 4964 - Clinical Practicum V (3)
- RAD 4965 - Clinical Practicum VI (3)

Advanced Modalities for Radiologic Technologists

Professionals who are currently American Registry of Radiologic Technologists (ARRT) registered may expand on their existing knowledge in the areas of Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Mammography, in affiliation with Beaumont Health. Each course is approximately one semester (15 - 17 weeks) in length and includes three to four days of clinical and one three-hour class day per week. Clinical hours take place on days and afternoon shifts at various Beaumont Health locations. Other clinical sites, locations and hours of attendance may be required. Clinical shifts vary based on the clinical rotation schedule, as assigned. With permission, additional clinical time may be allowed. Didactic coursework may be offered online. These advanced modality courses demand a high level of student professionalism, personal commitment, and academic focus.

Students may apply for admission to one of the modality courses listed below, through the Radiologic Technology program application process. Applicants are required to hold current ARRT registration or become registered with the ARRT within two weeks after the modality course start date and they must also hold current CPR ("Healthcare Provider") certification through the American Heart Association. Applications are accepted year round and the courses may be scheduled any semester based on the number of applicants. Acceptance into a modality course is based on previous math and science grade point average, personal interview, and letters of recommendation.

Modality Courses in Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Mammography

- RAD 4801 - Computed Tomography (6)
- RAD 4803 - Magnetic Resonance Imaging (7)
- RAD 4804 - Mammography (6)

Department of Human Movement Science

The Exercise Science program offers a Bachelor of Science in Exercise Science, a minor in Exercise Science, a minor in Orthotist and Prosthetist Assistant Studies, a specialization in Orthotist and Prosthetist Assistant Studies, and a concentration in pre-Physical Therapy designed to prepare students for the traditional application requirements for the Oakland University Doctor of Physical Therapy (DPT) as well as elective courses for students interested in the relationship among physical activity, weight control, disease prevention, stress management and nutrition for optimal health and performance.

High-achieving students who would like to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently should pursue the Exercise Science, Combined B.S. - M.S. degree program.

There is also an option for a concentration in pre-physical therapy. The pre-physical therapy concentration is designed to prepare students for the traditional application requirements for the Oakland University Doctor of Physical Therapy (DPT).

Exercise Science, B.S.

The Bachelor of Science in Exercise Science explores the interrelationships among lifestyle, physical activity and health, and the science of improving human performance.

Opportunities exist for students to establish personal programs of exercise, weight control, nutrition, stress management and substance abuse avoidance. Disease prevention and quality of life are components of many of the course offerings. Selecting courses in exercise science can be especially meaningful to students entering a health-related career, with the current emphasis placed on health promotion and disease prevention within the health care delivery system.

The exercise science major allows students opportunities for practicum, research, and laboratory experiences. The major prepares graduates for positions in the field and for competitive graduate degree programs.

Requirements for the B.S. degree with a major in Exercise Science

Students pursuing a degree in Exercise Science must complete a minimum of 123 credits, including the following requirements.

1. General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the exercise science core courses

3. Complete the pre-physical therapy academic concentration, Orthotist and Prosthetist Assistant Studies Specialization or electives to meet a minimum of 123 credits. Students are encouraged to complete a minor to contribute to the elective requirements.

Exercise Science Core Curriculum:

- BIO 1200 - Biology I (4)
- BIO 2100 - Human Anatomy (4)
- BIO 2101 - Human Anatomy Laboratory (1) or BIO 3621 - Physiology Laboratory (1)
- BIO 2600 - Human Physiology (4)
- CHM 1440 - General Chemistry I (4) * and CHM 1470 - General Chemistry Laboratory I (1)
- EXS 1000 - Exercise (Strength Training) and Health Enhancement (2) or EXS 1100 - Cardiovascular Fitness Training (2)
- EXS 2200 - Introduction to Exercise Science (2)
- EXS 2410 - Nutrition for Exercise, Sport and Health (3) or NTR 2500 - Human Nutrition and Health (3) and NTR 3200 - Nutrition and Physical Activity (2)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- EXS 3010 - Exercise Physiology (3)
- EXS 3020 - Biomechanics (3)
- EXS 3030 - Motor Control (3)
- EXS 4030 - Assessment and Interventions Laboratory (3)
- EXS 4715 - Integrated Laboratory in Exercise Science (3) *
- EXS 4960 - Practicum in Exercise Science (3) or EXS 4995 - Directed Research (3)
- HS 2000 - Introduction to Health and Health Behaviors (3) *
- MTH 1441 - Precalculus (4) or MTH 1554 - Calculus I (4) or MTH 1331 - College Algebra (4) and MTH 1332 - Trigonometry (3)

- PHY 1010 - General Physics I (4) * or PHY 1510 - Introductory Physics I (4)
- PHY 1100 - General Physics Lab I (1)
- PSY 1000 - Introduction to Psychology (4)
- PSY 2500 - Research Design in Psychology (4)
- STA 2220 - Introduction to Statistical Concepts and Reasoning (4) *

*EXS electives (4 credits) - not required for the Pre-PT concentration or the Orthotist and Prosthetist Assistant Studies specialization

Complete a minimum of 13 credit hours of electives

Electives can be chosen either from the following recommended courses or any course not required for the Exercise Science degree or used to fulfill general education requirements (not required for the Pre-PT concentration or the Orthotist and Prosthetist Assistant Studies specialization).

- EXS 1000 - Exercise (Strength Training) and Health Enhancement (2)
- EXS 1100 - Cardiovascular Fitness Training (2)
- EXS 1500 - Exercise (Judo) and Health Enhancement (2)
- EXS 2000 - Group Exercise Instruction I (2)
- EXS 2100 - Group Exercise Instruction II (2)
- EXS 2510 - Laboratory Safety (1)
- EXS 2520 - Practice Management (1)
- EXS 3015 - Exercise Physiology Laboratory (1)
- EXS 3510 - Clinical Assessments (3)
- EXS 3520 - Material Characteristics (2)
- EXS 3530 - Patient Management (1)
- EXS 3540 - Fit, Function and Modifications (3)
- EXS 3550 - Neuropathic Disorders (1)
- EXS 4100 - Introduction to Personal Training (2)
- EXS 4110 - Advanced Personal Training (2)
- EXS 4200 - Physical Activity and Aging (2)
- EXS 4210 - Children and Exercise (2)
- EXS 4300 - Human Performance Enhancement (2)
- EXS 4310 - Environment and Human Performance (2)

- EXS 4400 - Obesity and Physical Activity (2)
- EXS 4500 - Healthy Lifestyle Choices (2)
- EXS 4510 - Spinal Orthotics (2)
- EXS 4520 - Upper Extremity Orthotics (2)
- EXS 4530 - Lower Extremity Orthotics (3)
- EXS 4540 - Upper Extremity Prosthetics (3)
- EXS 4550 - Lower Extremity Prosthetics (3)
- EXS 4600 - Health and Disease (2)
- EXS 4620 - Clinical Biomechanics (2)
- EXS 4630 - Basic Athletic Training (2)
- EXS 4640 - Exercise Electrocardiography (2)
- EXS 4650 - Yoga Therapy (3)
- EXS 4700 - Corporate and Worksite Wellness Programs (2)
- EXS 4800 - Exercise Endocrinology (2)
- EXS 4810 - Physical Activity Epidemiology (2)
- EXS 4830 - Muscle Physiology (2)
- EXS 4900 - Special Topics (1 TO 4)
- EXS 4996 - Independent Study (1 TO 4)
- EXS 4997 - Apprentice College Teaching (1 TO 3)

Exercise Science, B.S., Concentration in Pre-Physical Therapy

Students may choose the pre-physical therapy academic concentration (see below) or complete elective credits to meet a minimum of 123 credits and satisfy university requirements for 3000/4000 level courses. See Exercise Science, B.S. and advisor for complete details on the specialization.

Required courses:

- CDS 2100 - Medical Terminology (1)
- CDS 4010 - Human Pathology (4)

- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- PHY 1020 - General Physics II (4) or PHY 1520 - Introductory Physics II (4)
- PHY 1110 - General Physics Lab II (1)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4)
- PT 3020 - Physical Therapy as a Profession (2)
- Open Elective (to total 1 credit)
- EXS electives (4 credits)

Exercise Science, B.S., Specialization in Orthotist and Prosthetist Assistant Studies

The Orthotist and Prosthetist Assistant Studies (O&P) specialization prepares students for a career as an O&P Assistant. O&P Assistants work in collaboration with clinical Orthotists and Prosthetists, as well as other healthcare providers, to design, fit and modify orthotic and prosthetic devices. They maintain a presence from the first assessment to follow up with the patient, encompassing the design, fabrication and fit of their devices.

Students pursuing a degree in Exercise Science with a Specialization in Orthotist and Prosthetist Assistant Studies must complete a minimum of 123 credits

To earn the specialization, students must meet the requirements outlined below and complete the following courses with a minimum grade of B-. See Exercise Science, B.S. and advisor for complete details on the specialization.

- CDS 2100 - Medical Terminology (1)
- EXS 2510 - Laboratory Safety (1)
- EXS 2520 - Practice Management (1)
- EXS 3510 - Clinical Assessments (3)
- EXS 3520 - Material Characteristics (2)
- EXS 3530 - Patient Management (1)
- EXS 3540 - Fit, Function and Modifications (3)
- EXS 3550 - Neuropathic Disorders (1)
- EXS 4510 - Spinal Orthotics (2)
- EXS 4520 - Upper Extremity Orthotics (2)

- EXS 4530 - Lower Extremity Orthotics (3)
- EXS 4540 - Upper Extremity Prosthetics (3)
- EXS 4550 - Lower Extremity Prosthetics (3)

Exercise Science, Combined B.S./M.S.

This combined bachelor/master degree program provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with an M.S. in Exercise Science in approximately one calendar year after completing a B.S. in Exercise Science. Students in the program complete 12 graduate level credits at the undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through the Graduate School.

Requirements for the Combined B.S./M.S. in Exercise Science (EXS) Degree Program

If a student has a minimum overall GPA of 3.2, has at least junior standing, and has completed half of the department credits required for the major the student may apply to the B.S./M.S. in EXS program through the graduate school. Qualified applicants will be given a delayed admission to the EXS program. (Full, formal admission will not take place until the student successfully completes his or her undergraduate degree).

A student accepted into the combined B.S./M.S. in EXS program continues his or her undergraduate degree with the substitution of 4 graduate courses.

If a combined B.S./M.S. program student has successfully graduated with a B.S. degree and an overall GPA of 3.0, he or she is fully admitted to the M.S. in EXS program.

*See graduate catalog for additional requirements for the combined B.S./M.S. program.

Students seeking the Combined B.S./M.S. in EXS program must complete a minimum of 123 credits to earn the B.S. and an additional 20 graduate credits to earn the M.S. See requirements below:

1. General Education Requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the Clinical and Diagnostic Sciences, B.S. section of the catalog.

2. Complete the foundational courses

- BIO 1200 - Biology I (4)

- BIO 2100 - Human Anatomy (4)
- BIO 2101 - Human Anatomy Laboratory (1) or BIO 3621 - Physiology Laboratory (1)
- BIO 2600 - Human Physiology (4)
- CHM 1440 - General Chemistry I (4) * and CHM 1470 - General Chemistry Laboratory I (1)
- EXS 1000 - Exercise (Strength Training) and Health Enhancement (2) or EXS 1100 - Cardiovascular Fitness Training (2)
- EXS 2200 - Introduction to Exercise Science (2)
- EXS 2410 - Nutrition for Exercise, Sport and Health (3) or NTR 2500 - Human Nutrition and Health (3) and NTR 3200 - Nutrition and Physical Activity (2)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- EXS 3010 - Exercise Physiology (3)
- EXS 3020 - Biomechanics (3)
- EXS 3030 - Motor Control (3)
- EXS 4030 - Assessment and Interventions Laboratory (3)
- EXS 4715 - Integrated Laboratory in Exercise Science (3)
- EXS 4960 - Practicum in Exercise Science (3) or EXS 4995 - Directed Research (3)
- HS 2000 - Introduction to Health and Health Behaviors (3)
- MTH 1441 - Precalculus (4) or MTH 1554 - Calculus I (4) or MTH 1331 - College Algebra (4) and MTH 1332 - Trigonometry (3)
- PHY 1010 - General Physics I (4) * or PHY 1510 - Introductory Physics I (4)
- PHY 1100 - General Physics Lab I (1)
- PSY 1000 - Introduction to Psychology (4)
- PSY 2500 - Research Design in Psychology (4)
- STA 2220 - Introduction to Statistical Concepts and Reasoning (4)

3. Complete electives in exercise science (to total 4 credits; EXS 4960 or EXS 4995 are required, but may be repeated once for credit with permission)

- EXS 1000 - Exercise (Strength Training) and Health Enhancement (2)
- EXS 1100 - Cardiovascular Fitness Training (2)
- EXS 1500 - Exercise (Judo) and Health Enhancement (2)
- EXS 2000 - Group Exercise Instruction I (2)

- EXS 2100 - Group Exercise Instruction II (2)
- EXS 2510 - Laboratory Safety (1)
- EXS 2520 - Practice Management (1)
- EXS 3015 - Exercise Physiology Laboratory (1)
- EXS 3510 - Clinical Assessments (3)
- EXS 3520 - Material Characteristics (2)
- EXS 3530 - Patient Management (1)
- EXS 3540 - Fit, Function and Modifications (3)
- EXS 3550 - Neuropathic Disorders (1)
- EXS 4100 - Introduction to Personal Training (2)
- EXS 4110 - Advanced Personal Training (2)
- EXS 4200 - Physical Activity and Aging (2)
- EXS 4210 - Children and Exercise (2)
- EXS 4300 - Human Performance Enhancement (2)
- EXS 4310 - Environment and Human Performance (2)
- EXS 4400 - Obesity and Physical Activity (2)
- EXS 4500 - Healthy Lifestyle Choices (2)
- EXS 4510 - Spinal Orthotics (2)
- EXS 4520 - Upper Extremity Orthotics (2)
- EXS 4530 - Lower Extremity Orthotics (3)
- EXS 4540 - Upper Extremity Prosthetics (3)
- EXS 4550 - Lower Extremity Prosthetics (3)
- EXS 4600 - Health and Disease (2)
- EXS 4620 - Clinical Biomechanics (2)
- EXS 4630 - Basic Athletic Training (2)
- EXS 4640 - Exercise Electrocardiography (2)
- EXS 4650 - Yoga Therapy (3)
- EXS 4700 - Corporate and Worksite Wellness Programs (2)
- EXS 4800 - Exercise Endocrinology (2)

- EXS 4810 - Physical Activity Epidemiology (2)
- EXS 4830 - Muscle Physiology (2)
- EXS 4900 - Special Topics (1 to 4)
- EXS 4996 - Independent Study (1 to 4)
- EXS 4997 - Apprentice College Teaching (1 to 3)

4. Graduate courses

- EXS 5010 Advanced Exercise Physiology (4)
- EXS 5020 Advanced Biomechanics (3)
- EXS 5030 Diagnostic Testing and Exercise Prescription (3)
- EXS 5040 Nutrition, Weight Management and Exercise (2)

Note

All university and departmental requirements for each of the B.S. and M.S. degrees must be satisfied to receive both degrees. The full number of credit hours required for the B.S and M.S. degrees must be completed; this includes the 12-credits of graduate courses completed as an undergraduate and approved to count towards the undergraduate and graduate degree requirements.

Exercise Science Minor

A 20-credit minor in Exercise Science is available to students in any major, other than the exercise science major, seeking a formal introduction to the exercise science field.

Courses required for the minor (13 credits)

- EXS 1000 - Exercise (Strength Training) and Health Enhancement (2) or EXS 1100 - Cardiovascular Fitness Training (2)
- EXS 2200 - Introduction to Exercise Science (2)
- EXS 3010 - Exercise Physiology (3) *
- EXS 3020 - Biomechanics (3) *
- EXS 3030 - Motor Control (3)

Choose a minimum of 7 credits of electives from the following courses:

- EXS 1500 - Exercise (Judo) and Health Enhancement (2)
- EXS 2000 - Group Exercise Instruction I (2)

- EXS 2100 - Group Exercise Instruction II (2)
- EXS 2510 - Laboratory Safety (1)
- EXS 2520 - Practice Management (1)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- EXS 3015 - Exercise Physiology Laboratory (1)
- EXS 3510 - Clinical Assessments (3)
- EXS 3520 - Material Characteristics (2)
- EXS 3530 - Patient Management (1)
- EXS 3540 - Fit, Function and Modifications (3)
- EXS 3550 - Neuropathic Disorders (1)
- EXS 4100 - Introduction to Personal Training (2)
- EXS 4110 - Advanced Personal Training (2)
- EXS 4200 - Physical Activity and Aging (2)
- EXS 4210 - Children and Exercise (2)
- EXS 4300 - Human Performance Enhancement (2)
- EXS 4310 - Environment and Human Performance (2)
- EXS 4400 - Obesity and Physical Activity (2)
- EXS 4500 - Healthy Lifestyle Choices (2)
- EXS 4510 - Spinal Orthotics (2)
- EXS 4520 - Upper Extremity Orthotics (2)
- EXS 4530 - Lower Extremity Orthotics (3)
- EXS 4540 - Upper Extremity Prosthetics (3)
- EXS 4550 - Lower Extremity Prosthetics (3)
- EXS 4600 - Health and Disease (2)
- EXS 4620 - Clinical Biomechanics (2)
- EXS 4630 - Basic Athletic Training (2)
- EXS 4640 - Exercise Electrocardiography (2)
- EXS 4650 - Yoga Therapy (3)
- EXS 4700 - Corporate and Worksite Wellness Programs (2)

- EXS 4800 - Exercise Endocrinology (2)
- EXS 4810 - Physical Activity Epidemiology (2)
- EXS 4830 - Muscle Physiology (2)
- EXS 4900 - Special Topics (1 TO 4)
- EXS 4996 - Independent Study (1 TO 4)
- EXS 4997 - Apprentice College Teaching (1 TO 3)
- HS 2000 - Introduction to Health and Health Behaviors (3)
- HS 2150 - Stress Management (3)
- WHP 3600 - Wellness Facilitation (4)
- General Education courses in the minor that satisfies the following areas of requirement:
- HS 2000 (Natural Science and Technology)

Additional Information

Courses denoted with an asterisk (*) represent prerequisite courses for admission to the Master of Science in Exercise Science program. An additional prerequisite for admission to this graduate program is STA 2220 or STA 2226 or PSY 2510.

Orthotist and Prosthetist Assistant Studies

Minor

An 18-credit minor in Orthotist and Prosthetist Assistant Studies is available to students in any major. Students in the minor will take courses from the Orthotist and Prosthetist Assistant Studies, which is part of the Bachelor of Exercise Science Degree. Orthotist and Prosthetist Assistant Studies provides preparation for a career as an Orthotist or Prosthetist Assistant. These individuals perform orthotic and prosthetic procedures and related tasks associated with patient care.

Core Courses required for the minor (13 credits)

The following courses MUST be taken with a minimum grade of B-

- CDS 2100 - Medical Terminology (1)
- EXS 2510 - Laboratory Safety (1)
- EXS 2520 - Practice Management (1)
- EXS 3510 - Clinical Assessments (3) **
- EXS 3520 - Material Characteristics (2) ***

- EXS 3530 - Patient Management (1) *
- EXS 3550 - Neuropathic Disorders (1)
- EXS 3540 - Fit, Function and Modifications (3)

* Pre-req PSY 1000

**Pre-req BIO 2100, BIO 2101, BIO 2600

*** Pre-req PHY 1010, PHY 1100

Additional Courses in Orthotist and Prosthetist Assistant Studies (5 credits)

Upon completion of the core, students must take a minimum of 5 credits with a minimum grade of B-

- EXS 4510 - Spinal Orthotics (2)
- EXS 4520 - Upper Extremity Orthotics (2)
- EXS 4530 - Lower Extremity Orthotics (3)
- EXS 4540 - Upper Extremity Prosthetics (3)
- EXS 4550 - Lower Extremity Prosthetics (3)

Department of Interdisciplinary Health Sciences

A Bachelor of Science in Health Sciences combines a broad spectrum of behavioral sciences, social sciences, natural sciences, and health sciences courses and electives for students who desire a health focused academic experience. In addition, students choose one of three academic concentrations to obtain greater exposure to a specific health discipline: generalist, holistic health; pre-health professional and pre-pharmacy.

The Bachelor of Science in Nutrition (NTR) provides coursework in a wide array of nutritional domains, including community nutrition, medical nutrition therapy, and food science, among others. Students can apply for the dietetics specialization in their sophomore year, for entry in their junior year.

Health Sciences, B.S.

A Bachelor of Science in Health Sciences combines a broad spectrum of behavioral sciences, social sciences, natural and health sciences courses and electives for students who desire health focused academic experience. In addition, students choose one of three academic concentrations to obtain greater exposure to a specific health discipline: including holistic health, pre-health professional and pre-pharmacy.

Requirements for the B.S. degree with a major in Health Sciences

Students pursuing a degree in health sciences must complete the following requirements.

1. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity. For details, refer to the General Education Requirements section of the catalog.

2. Complete the prescribed number of credits from the following courses

- BIO 1200 - Biology I (4)*
- BIO 2100 - Human Anatomy (4)
- BIO 2101 - Human Anatomy Laboratory (1) or BIO 3621 - Physiology Laboratory (1)
- BIO 2600 - Human Physiology (4) or BIO 3620 - Medical Physiology (4) or BIO 4620 - Advanced Human Physiology (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)*
- HS 3500 - Health Behavior Theories (3)*
- HS 4500 - Ethics in Health Care (4)
- PSY 1000 - Introduction to Psychology (4)* or SOC 1010 - Introduction to Sociology through Health and Medicine (4)*
- PH 3000 - Introduction to Public Health (3)*
- *Courses that also satisfy the university general education requirement.

3. Complete the course requirements specified under one of the academic concentration areas.

- Health Sciences, B.S., Concentration in Holistic Health
- Health Sciences, B.S., Concentration in Pre-Health Professional Studies
- Health Sciences, B.S., Concentration in Pre-Pharmacy

Health Sciences, B.S., Concentration in Holistic Health

The Holistic Health concentration prepares students for many traditional and non-traditional health and service-oriented professions and graduate programs.

Students completing the Health Sciences, B.S. with an academic concentration in Holistic Health must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses.

Requirements for the B.S. degree with a major in Health Sciences

Students pursuing a degree in health sciences must complete the following requirements.

Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity. For details, refer to the General Education Requirements section of the catalog.

Complete the prescribed number of credits from the following courses

- BIO 1200 - Biology I (4)*
- BIO 2100 - Human Anatomy (4)
- BIO 2101 - Human Anatomy Laboratory (1) or BIO 3621 - Physiology Laboratory (1)
- BIO 2600 - Human Physiology (4) or BIO 3620 - Medical Physiology (4) or BIO 4620 - Advanced Human Physiology (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)*
- HS 3500 - Health Behavior Theories (3)*
- HS 4500 - Ethics in Health Care (4)
- PSY 1000 - Introduction to Psychology (4)* or SOC 1010 - Introduction to Sociology through Health and Medicine (4)*
- PH 3000 - Introduction to Public Health (3)*
- *Courses that also satisfy the university general education requirement

Complete the course requirements specified under the Holistic Health Concentration

Required courses

- HS 3250 - Research Methods in Health Sciences (3) or PSY 2500 - Research Design in Psychology (4)
- HS 3400 - Contemporary Topics in Health (3)
- HS 3410 - Integrative Holistic Health (3)
- HS 4430 - Modalities for Healing (3)

- HS 4440 - Healing Traditions (3)
- HS 4450 - Laughter as Therapeutic Modality (3)
- HS 4460 - Mindfulness (3)
- WHP 3500 - Health Program Implementation (4)
- WHP 3700 - Culture, Ethnicity and Well-being (3)

Number of required elective credits varies

The number of required elective credits varies based on core courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 total course credits and satisfy all University degree requirements to graduate.

A minimum of 34 credits from these Holistic Health concentration elective courses.

- AHS 3310 - Health Care Safety (4)
- AHS 3320 - Delivering Safe Patient Care (4)
- AHS 3340 - Hospital Safety and Health (4)
- AHS 4310 - Ergonomics in the Health Care Industry (3)
- AHS 4320 - Risk Reduction Safety Culture Improvement in Healthcare (2)
- AN 3220 - Medical Anthropology (4)
- BIO 1201 - Biology Laboratory (1)
- BIO 1300 - Biology II (4)
- BIO 3130 - Developmental Biology (4)
- BIO 3230 - Fundamentals of Biochemistry (4)
- BIO 3232 - Biochemistry I (4)
- BIO 3233 - Biochemistry I Laboratory (1)
- BIO 3330 - Ecology (5)
- BIO 3332 - Field Biology (4)
- BIO 3400 - Genetics (4)
- BIO 3401 - Genetics Laboratory (1)
- BIO 3500 - General Microbiology (4)
- BIO 3501 - General Microbiology Laboratory (1)
- BIO 4120 - Neuroanatomy (4)

- CDS 2100 - Medical Terminology (1)
- CDS 4010 - Human Pathology (4)
- CDS 4050 - Pharmacology (3)
- CDS 4250 - Medical Biochemistry (4)
- CDS 4300 - Clinical Microbiology (4)
- CDS 4320 - Medical Microbiology Laboratory (1)
- CHM 1040 - Introduction to Chemical Principles (4)
- CHM 1440 - General Chemistry I (4) and CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2010 - Introduction to Organic and Biological Chemistry (4)
- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- CHM 4254 - Biochemistry I (3)
- CHM 4257 - Biochemistry Laboratory (3)
- COM 1500 - Introduction to American Sign Language (4)
- COM 2000 - Public Speaking (4)
- EXS 2200 - Introduction to Exercise Science (2)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- EXS 3010 - Exercise Physiology (3)
- EXS 3015 - Exercise Physiology Laboratory (1)
- EXS 3020 - Biomechanics (3)
- EXS 4100 - Introduction to Personal Training (2)
- EXS 4300 - Human Performance Enhancement (2)
- EXS 4400 - Obesity and Physical Activity (2)
- EXS 4500 - Healthy Lifestyle Choices (2)
- EXS 4600 - Health and Disease (2)
- EXS 4620 - Clinical Biomechanics (2)
- EXS 4630 - Basic Athletic Training (2)

- EXS 4650 - Yoga Therapy (3)
- EXS 4810 - Physical Activity Epidemiology (2)
- HS 1000 - Careers in Health (1)
- HS 2150 - Stress Management (3)
- HS 3430 - Sociology of Health and Medicine (4)
- HS 3440 - Introduction to Community Engagement (4)
- HS 3450 - Leadership and Healthcare (4)
- HS 3460 - Community Engaged Research Experience (4)
- HS 4550 - Qualitative Research Methods (4)
- HS 4900 - Special Topics (2 TO 4)
- MTH 1441 - Precalculus (4)
- MTH 1554 - Calculus I (4)
- NTR 2500 - Human Nutrition and Health (3)
- NTR 2700 - Introduction to Food Science (3)
- NTR 3120 - Community Nutrition (3)
- NTR 3140 - Food, Nutrition, and Culture (3) *
- NTR 3200 - Nutrition and Physical Activity (2)
- NTR 3210 - Herbs Supplements Nutrition (2)
- NTR 3220 - Eating Disorders (2)
- NTR 3230 - Foodborne Illnesses (2)
- NTR 3260 - Food Politics (2)
- NTR 4100 - Nutrition and Lifecycles (4)
- NTR 4350 - Nutrient Metabolism (4)
- PH 3350 - Principles of Environmental Health Sciences (4)
- PH 4650 - Social Determinants of Health (4)
- PH 4750 - Global Health and Social Issues (4)
- PHY 1010 - General Physics I (4)
- PHY 1020 - General Physics II (4)
- PHY 1080 - Principles of Physics I (4)

- PHY 1090 - Principles of Physics II (4)
- PHY 1100 - General Physics Lab I (1)
- PHY 1110 - General Physics Lab II (1)
- PHY 1510 - Introductory Physics I (4)
- PHY 1520 - Introductory Physics II (4)
- PHY 3260 - Medical Physics (4)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4)
- PSY 3210 - Child Development (4)
- PSY 3220 - Adolescence and Youth (4)
- PSY 3230 - Adulthood and Aging (4)
- PSY 3330 - Motivation (4)
- PSY 3450 - Health Psychology (4)
- SOC 1000 - Introduction to Sociology (4)
- STA 2220 - Introduction to Statistical Concepts and Reasoning (4)
- WHP 3250 - Issues in Women's Health (4)
- WHP 3600 - Wellness Facilitation (4)
- WHP 3800 - Persuasion and Marketing in Health Promotion (4)
- WHP 4000 - Assessment and Interventions in Wellness (4)
- WHP 4030 - Laboratory in Assessment and Interventions (4)
- WHP 4310 - Crisis Intervention and Prevention of Self Harm (4)
- WHP 4350 - Environmental Justice (4)
- WHP 4850 - Population Health, Health Policy, and Healthcare Delivery (4)
- WHP 4900 - Special Topics (1 TO 4)
- WRT 1050 - Composition I (4)
- or any other course approved by the program director in writing through approved petition of exception form

Health Sciences, B.S., Concentration in Pre-Health Professional Studies

The pre-health professional concentration incorporates natural science courses to prepare students for the traditional application requirements for medical, dental, optometric, physician assistant and other professional schools.

Students completing the Health Sciences, B.S. with a concentration in pre-health professional studies must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses for the concentration.

Requirements for the B.S. degree with a major in Health Sciences

Students pursuing a degree in health sciences must complete the following requirements.

Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity. For details, refer to the General Education Requirements section of the catalog.

Complete the prescribed number of credits from the following courses

- BIO 1200 - Biology I (4)*
- BIO 2100 - Human Anatomy (4)
- BIO 2101 - Human Anatomy Laboratory (1) or BIO 3621 - Physiology Laboratory (1)
- BIO 2600 - Human Physiology (4) or BIO 3620 - Medical Physiology (4) or BIO 4620 - Advanced Human Physiology (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)*
- HS 3500 - Health Behavior Theories (3)*
- HS 4500 - Ethics in Health Care (4)
- PSY 1000 - Introduction to Psychology (4)* or SOC 1010 - Introduction to Sociology through Health and Medicine (4)*
- PH 3000 - Introduction to Public Health (3)*
- *Courses that also satisfy the university general education requirement.

Complete the course requirements specified under Pre-Health Professional Studies

Required courses

- BIO 1300 - Biology II (4) *
- CDS 4000 - Medical Genetics (4) or BIO 3400 - Genetics (4)
- CDS 4250 - Medical Biochemistry (4) or BIO 3232 - Biochemistry I (4)
- CHM 1440 - General Chemistry I (4) * and CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- HS 3250 - Research Methods in Health Sciences (3) or PSY 2500 - Research Design in Psychology (4) or PSY 2250 - Introduction to Life-Span Developmental Psychology (4)
- NTR 2500 - Human Nutrition and Health (3)
- MTH 1441 - Precalculus (4) or MTH 1554 - Calculus I (4)
- STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or EHS 2550 - Basic Statistics for Health Sciences (3)
- PHY 1010 - General Physics I (4) * or PHY 1510 - Introductory Physics I (4)
- PHY 1100 - General Physics Lab I (1)

Complete a minimum of 11 credits from the following: (At least 10 credits at 3000-4000 level)

The number of required elective credits varies based on core courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 total course credits and satisfy all University degree requirements to graduate.

Note: Courses required for the major and the concentration cannot be counted as an elective. Students are required to satisfy the university's upper level requirement by completing at least 32 credit hours at the upper level (3000-4000).

- AHS 3310 - Health Care Safety (4)
- AHS 3320 - Delivering Safe Patient Care (4)
- AHS 3340 - Hospital Safety and Health (4)
- BCM 4254 - Biochemistry I (3)
- BIO 3000 - Biology and Society (4)
- BIO 3130 - Developmental Biology (4)

- BIO 3230 - Fundamentals of Biochemistry (4)
- BIO 3232 - Biochemistry I (4)
- BIO 3233 - Biochemistry I Laboratory (1)
- BIO 3330 - Ecology (5)
- BIO 3332 - Field Biology (4)
- BIO 3400 - Genetics (4)
- BIO 3401 - Genetics Laboratory (1)
- BIO 3500 - General Microbiology (4)
- BIO 3501 - General Microbiology Laboratory (1)
- BIO 4620 - Advanced Human Physiology (4)
- CDS 2100 - Medical Terminology (1)
- CDS 4000 - Medical Genetics (4)
- CDS 4050 - Pharmacology (3)
- CDS 4250 - Medical Biochemistry (4)
- CDS 4300 - Clinical Microbiology (4)
- CDS 4320 - Medical Microbiology Laboratory (1)
- CHM 4254 - Biochemistry I (3)
- CHM 4257 - Biochemistry Laboratory (3)
- EXS 3010 - Exercise Physiology (3)
- EXS 3015 - Exercise Physiology Laboratory (1)
- EXS 3020 - Biomechanics (3)
- EXS 4300 - Human Performance Enhancement (2)
- EXS 4400 - Obesity and Physical Activity (2)
- EXS 4500 - Healthy Lifestyle Choices (2)
- EXS 4600 - Health and Disease (2)
- EXS 4620 - Clinical Biomechanics (2)
- EXS 4630 - Basic Athletic Training (2)
- EXS 4810 - Physical Activity Epidemiology (2)
- HS 1000 - Careers in Health (1)

- HS 2150 - Stress Management (3)
- HS 3400 - Contemporary Topics in Health (3)
- HS 3430 - Sociology of Health and Medicine (4)
- HS 3440 - Introduction to Community Engagement (4)
- HS 3450 - Leadership and Healthcare (4)
- HS 3460 - Community Engaged Research Experience (4)
- HS 4450 - Laughter as Therapeutic Modality (3)
- NTR 2650 - Nutrition Assessment Methods (3)
- NTR 2651 - Nutrition Assessment Methods Laboratory (1)
- NTR 3120 - Community Nutrition (3)
- NTR 3140 - Food, Nutrition, and Culture (3) *
- NTR 3200 - Nutrition and Physical Activity (2)
- NTR 3210 - Herbs Supplements Nutrition (2)
- NTR 3220 - Eating Disorders (2)
- NTR 3230 - Foodborne Illnesses (2)
- NTR 4100 - Nutrition and Lifecycles (4)
- NTR 4200 - Communication and Counseling in Nutrition Practice (4)
- NTR 4300 - Food Service Management (4)
- NTR 4350 - Nutrient Metabolism (4)
- PH 4750 - Global Health and Social Issues (4)
- PHY 3260 - Medical Physics (4)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4)
- PSY 3010 - The Psychology of Human Sexuality (4)
- PSY 3020 - Evolution, Science, and Superstition (4)
- PSY 3030 - Evolutionary Psychology (4)
- PSY 3040 - Animal Behavior (4)
- PSY 3100 - Creativity and Innovation (4)
- PSY 3160 - Cognitive Psychology (4)
- PSY 3180 - Biological Psychology (4)

- PSY 3210 - Child Development (4)
- PSY 3220 - Adolescence and Youth (4)
- PSY 3230 - Adulthood and Aging (4)
- PSY 3330 - Motivation (4)
- PSY 3340 - Industrial and Organizational Psychology (4)
- PSY 3370 - Group Dynamics (4)
- PSY 3390 - Emotion (4)
- PSY 3410 - Adult Psychopathology (4)
- PSY 3430 - Child Psychopathology (4)
- PSY 3440 - Behavior Analysis (4)
- PSY 3450 - Health Psychology (4)
- WHP 3250 - Issues in Women's Health (4)
- WHP 3500 - Health Program Implementation (4)
- WHP 3600 - Wellness Facilitation (4)
- WHP 3800 - Persuasion and Marketing in Health Promotion (4)
- WHP 4000 - Assessment and Interventions in Wellness (4)
- WHP 4030 - Laboratory in Assessment and Interventions (4)
- WHP 4310 - Crisis Intervention and Prevention of Self Harm (4)
- WHP 4850 - Population Health, Health Policy, and Healthcare Delivery (4)
- WHP 4900 - Special Topics (1 TO 4)
- or any other course approved by the program director in writing through approved petition exception form

Health Sciences, B.S., Concentration in Pre-Pharmacy

Students pursuing a Health Sciences, B.S. at Oakland University with a pre-pharmacy concentration may pursue admission to any accredited Doctor of Pharmacy program. Students may complete their senior year of coursework at any PharmD program and credits earned from courses at this program will be transferred back to OU to complete the requirements for the Bachelor of Science with a major in health sciences program. It is highly recommended that students consult with the academic adviser prior to enrolling in any of these classes, as completion of coursework does not guarantee admission or

completion of the program. Admission into an accredited PharmD program is required to complete this degree. Admission to a PharmD program is through a competitive admissions process. Once accepted, Oakland students will need to: 1) send a letter of acceptance to their academic adviser; 2) register for classes and pay tuition through the PharmD school; and 3) send official transcripts after the first year (fall/winter semesters) of the PharmD program to Oakland University.

Students must achieve a minimum of 120 total course credits with a minimum of 32 upper level (3000-4000) course credits and satisfy all University degree requirements for the major in health sciences and take the concentration courses. Completion of this concentration requires at least one year of a professional accredited pharmacy school with no fewer than 20 credits of professional PharmD coursework. Students are required to meet with their assigned academic adviser to discuss the details of the degree requirements.

Students completing the Bachelor of Science in health sciences with a concentration in pre-pharmacy studies must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses for the concentration.

Requirements for the B.S. degree with a major in Health Sciences

Students pursuing a degree in health sciences must complete the following requirements.

Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity. For details, refer to the General Education Requirements section of the catalog.

Complete the prescribed number of credits from the following courses

- BIO 1200 - Biology I (4)*
- BIO 2100 - Human Anatomy (4)
- BIO 2101 - Human Anatomy Laboratory or BIO 3621 - Physiology Laboratory (1)
- BIO 2600 - Human Physiology (4) or BIO 3620 - Medical Physiology (4) or BIO 4620 - Advanced Human Physiology (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)*
- HS 3500 - Health Behavior Theories (3)*
- HS 4500 - Ethics in Health Care (4)
- PSY 1000 - Introduction to Psychology (4)* or SOC 1010 - Introduction to Sociology through Health and Medicine (4)*
- PH 3000 - Introduction to Public Health (3)*

- *Courses that also satisfy the university general education requirement

Complete the course requirements specified under the Pre-Pharmacy Concentration

1. Required courses

- CDS 2100 - Medical Terminology (1)
- CDS 4250 - Medical Biochemistry (4) or CDS 4000 - Medical Genetics (4) or BIO 3400 - Genetics (4)
- CDS 4300 - Clinical Microbiology (4) or BIO 3500 - General Microbiology (4)
- CDS 4320 - Medical Microbiology Laboratory (1) or BIO 3501 - General Microbiology Laboratory (1)
- CHM 1440 - General Chemistry I (4) and CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- COM 2000 - Public Speaking (4)
- MTH 1554 - Calculus I (4)
- PHY 1010 - General Physics I (4) or PHY 1510 - Introductory Physics I (4)
- PHY 1100 - General Physics Lab I (1)
- STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or EHS 2550 - Basic Statistics for Health Sciences (3)

2. PharmD coursework minimum of 20 credits transferred to Oakland University

OR

substitute an equivalent number of elective credits

Students not entering a PharmD program may substitute an equivalent number of elective credits. Number of required elective credits required vary based on core courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses.

Note

Electives are the same as the Health Sciences, B.S., Concentration in Pre-Health Professional Studies electives.

Interdisciplinary Healthcare Studies, B.S.

A Bachelor of Science in Interdisciplinary Healthcare Studies offers an opportunity to acquire health expertise across disciplines that allow students to pursue a health science degree that extends beyond training for direct clinical care provision. This degree positions students to pursue job opportunities in a variety of supportive and non-clinical positions in healthcare.

Requirements for the B.S. degree with a major in Interdisciplinary Healthcare Studies, B.S.

Students pursuing a degree in Interdisciplinary Healthcare Studies must complete a minimum of 120 credits, including the following requirements.

1. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the Healthcare Studies required courses

- BIO 1200 - Biology I (4) *
- BIO 2006 - Clinical Anatomy and Physiology (5)
- CDS 2100 - Medical Terminology (1)
- EHS 2550 - Basic Statistics for Health Sciences (3)*
- ECN 1500 - Economics in Today's World (4)*
- HS 2000 - Introduction to Health and Health Behaviors (3) *
- HS 3250 - Research Methods in Health Sciences (3)
- HS 3300 - Interdisciplinary Health Knowledge Applications I (2)
- HS 3310 - Interdisciplinary Health Knowledge Applications II (2)
- HS 3320 - Dissemination of Health Information and Research (3)
- HS 3430 - Sociology of Health and Medicine (4)
- HS 3440 - Introduction to Community Engagement (4)
- HS 3450 - Leadership and Healthcare (4)
- HS 3500 - Health Behavior Theories (3)*
- HS 4200 - Human Disease Management and Healthcare (3)

- HS 4500 - Ethics in Health Care (4) *
- MIS 1000 - Business Problem Solving with Information Technology (3) or CSI 1200 - Introduction to Computing and Programming using Excel (4)
- MIS 3010 - Survey of Management Information Systems (3)
- PH 3000 - Introduction to Public Health (3)*
- PH 4750 - Global Health and Social Issues (4)
- PHL 1320 - Introduction to Ethics for Healthcare Professions (4) *
- POM 3000 - Survey of Operations Management (3)
- PSY 1000 - Introduction to Psychology (4) *
- SOC 1000 - Introduction to Sociology (4)*
- WHP 2800 - Introduction to Health Literacy (4)
- WHP 4850 - Population Health, Health Policy, and Healthcare Delivery (4)

*Courses that also satisfy the university general education requirement.

3. Complete a minimum of 12 credits

The number of required elective credits varies based on core courses completed. Students are encouraged to work with their academic adviser to assist with credit requirements. Students must achieve a minimum of 120 total course credits hours and satisfy all University degree requirements to graduate. Students may apply the elective credits courses as part of a minor.

Note

Courses required for the major and the concentration cannot be counted as an elective. Students are required to satisfy the university's upper level requirement by completing at least 32 credit hours at the upper level (3000-4000).

Nutrition, B.S.

The Bachelor of Science in Nutrition (NTR) degree provides coursework in a wide array of nutritional domains, including community nutrition, medical nutrition therapy, and food science, among others. This degree positions students to pursue post-bachelor nutrition and wellness job opportunities in health care, nonprofit, government, industry, and academic settings. Students can apply for the dietetics specialization in their sophomore year, for entry in their junior year. The NTR degree also prepares students for graduate programs in nutrition, public health, and other health professions.

Requirements for the major in nutrition, B.S. program

Students completing a B.S. degree in Nutrition must complete a minimum of 120 credits and the following:

1. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the Nutrition core courses

- BIO 1200 - Biology I (4)
- BIO 2006 - Clinical Anatomy and Physiology (5) or BIO 2100 - Human Anatomy (4) and BIO 2600 - Human Physiology (4)
- CDS 2100 - Medical Terminology (1)
- CDS 3300 - Microbiology of Infectious Diseases (3) or BIO 3500 - General Microbiology (4) or BIO 3520 - Introduction to Human Microbiology (4)
- CDS 4250 - Medical Biochemistry (4)
- CHM 1440 - General Chemistry I (4)
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- EHS 2550 - Basic Statistics for Health Sciences (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4)
- HS 2000 - Introduction to Health and Health Behaviors (3) *
- HS 3500 - Health Behavior Theories (3) *
- NTR 1000 - Careers in Nutrition (1)
- NTR 2500 - Human Nutrition and Health (3)
- NTR 2650 - Nutrition Assessment Methods (3)
- NTR 2651 - Nutrition Assessment Methods Laboratory (1)
- NTR 2700 - Introduction to Food Science (3)
- NTR 2750 - Introduction to Cooking and Culinary Science (2)

- NTR 3000 - Nutrition Research Methods (3)
- NTR 3120 - Community Nutrition (3)
- NTR 3140 - Food, Nutrition, and Culture (3) *
- NTR 3230 - Foodborne Illnesses (2) - Not required for the Specialization in Dietetics
- NTR 4100 - Nutrition and Lifecycles (4)
- NTR 4350 - Nutrient Metabolism (4)
- NTR 4400 - Medical Nutrition Therapy I (4)
- PH 3000 - Introduction to Public Health (3) *
- PSY 1000 - Introduction to Psychology (4) or SOC 1000 - Introduction to Sociology (4) *
- WRT 1060 - Composition II (4)

*Courses that also satisfy the university general education requirement

3. Communication and ethics requirements

All students majoring in nutrition are required to take one (1) communication and one (1) ethics course related to health and nutrition. In addition, dietetics specialization students are required to take the NTR 4200 - Communication and Counseling in Nutrition Practice and NTR 4500 - Professional Practice & Ethics in Nutrition.

- NTR 4200 - Communication and Counseling in Nutrition Practice (4) or WHP 2800 - Introduction to Health Literacy (4) or COM 4402 - Health Communication (4)
- NTR 4500 - Professional Practice & Ethics in Nutrition (3) or HS 4500 - Ethics in Health Care (4)

Other requirements

Students are required to complete the Dietetics Specialization, or the minimum number of elective credits to achieve a minimum of 120 total course credits with a minimum of 32 upper level (3000-4000) course credits and satisfy all University degree requirements to graduate.

4. Electives for the Nutrition major

Number of required elective credits varies based on core courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 total course credits with a minimum of 32 upper level (3000-4000) course credits and satisfy all University degree requirements to graduate.

Note: Courses required for the major and the specialization cannot be counted as an elective.

- AN 3133 - The Food Quest (4) or ENV 3220 - The Food Quest (4)
- AN 3220 - Medical Anthropology (4)
- BIO 2100 - Human Anatomy (4)

- BIO 2101 - Human Anatomy Laboratory (1)
- BIO 3360 - Organic Farming (4)
- BIO 3361 - Applied Organic Farming (1)
- BIO 3400 - Genetics (4)
- BIO 4220 - Cell Biology of Cancer (4)
- BIO 4338 - Food Systems Biology (4)
- BIO 4900 - Selected Topics in Biology (1 TO 5)
- CDS 2010 - Careers in Clinical and Diagnostic Sciences (1)
- CDS 2070 - Health Care Systems Around the World (3)
- CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)
- CDS 4000 - Medical Genetics (4)
- CDS 4010 - Human Pathology (4)
- CDS 4300 - Clinical Microbiology (4)
- CDS 4310 - Clinical Microbiology Laboratory (1)
- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- COM 2000 - Public Speaking (4)
- COM 2001 - Professional Communication (4)
- COM 2403 - Group Dynamics and Communication (4)
- COM 3200 - Persuasion (4)
- COM 3402 - Communication in Leadership (4)
- ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- ECN 3670 - Economics of Health Care (3)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- EXS 3010 - Exercise Physiology (3)
- EXS 3015 - Exercise Physiology Laboratory (1)
- EXS 3020 - Biomechanics (3)
- EXS 3030 - Motor Control (3)

- EXS 4100 - Introduction to Personal Training (2)
- EXS 4200 - Physical Activity and Aging (2)
- EXS 4210 - Children and Exercise (2)
- EXS 4300 - Human Performance Enhancement (2)
- EXS 4400 - Obesity and Physical Activity (2)
- EXS 4500 - Healthy Lifestyle Choices (2)
- EXS 4600 - Health and Disease (2)
- EXS 4620 - Clinical Biomechanics (2)
- EXS 4630 - Basic Athletic Training (2)
- EXS 4800 - Exercise Endocrinology (2)
- EXS 4810 - Physical Activity Epidemiology (2)
- HRD 4320 - Program Evaluation (4)
- HS 1000 - Careers in Health (1)
- HS 2150 - Stress Management (3)
- HS 3410 - Integrative Holistic Health (3)
- HS 3430 - Sociology of Health and Medicine (4)
- HS 3440 - Introduction to Community Engagement (4)
- HS 3450 - Leadership and Healthcare (4)
- HS 3460 - Community Engaged Research Experience (4)
- HS 4430 - Modalities for Healing (3)
- HS 4440 - Healing Traditions (3)
- HS 4450 - Laughter as Therapeutic Modality (3)
- HS 4460 - Mindfulness (3)
- HS 4550 - Qualitative Research Methods (4)
- HS 4900 - Special Topics (2 TO 4)
- MIS 3020 - Information Systems and Healthcare Informatics (3)
- MKT 4040 - Consumer Behavior (4)
- MTH 1554 - Calculus I (4)
- NTR 2800 - Plant-based Diet Nutrition (3)

- NTR 3200 - Nutrition and Physical Activity (2)
- NTR 3210 - Herbs Supplements Nutrition (2)
- NTR 3220 - Eating Disorders (2)
- NTR 3260 - Food Politics (2)
- NTR 3300 - Organizational Behavior and Health Care Systems (3)
- PHY 1010 - General Physics I (4)
- PHY 1100 - General Physics Lab I (1)
- PHY 1020 - General Physics II (4)
- PHY 1110 - General Physics Lab II (1)
- PS 3340 - Public Policy and Health Care (4)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4)
- PSY 2360 - Introduction to Individual Differences and Personality Psychology (4)
- PSY 3210 - Child Development (4)
- PSY 3220 - Adolescence and Youth (4)
- PSY 3230 - Adulthood and Aging (4)
- PSY 3330 - Motivation (4)
- PSY 3440 - Behavior Analysis (4)
- PSY 3450 - Health Psychology (4)
- PSY 3500 - Introduction to Psychometrics (4)
- SOC 3430 - Sociology of Health and Medicine (4)
- WHP 2800 - Introduction to Health Literacy (4)
- WHP 3010 - Equitable Wellness for Diverse Population (4)
- WHP 3500 - Health Program Implementation (4)
- WHP 3600 - Wellness Facilitation (4)
- WHP 3800 - Persuasion and Marketing in Health Promotion (4)
- WHP 4000 - Assessment and Interventions in Wellness (4)
- WHP 4030 - Laboratory in Assessment and Interventions (4)
- WHP 4350 - Environmental Justice (4)
- WHP 4850 - Population Health, Health Policy, and Healthcare Delivery (4)

- WHP 4900 - Special Topics (1 TO 4)
- WRT 1050 - Composition I (4)
- or any other course approved by the program director in writing through approved petition exception form

Nutrition, B.S., Specialization in Dietetics

The dietetics specialization provides coursework and experiential learning for students interested in pursuing a career in the field of nutrition and dietetics.

Students in the dietetics specialization fulfill the same requirements as the Nutrition Major with the additional classes

- NTR 3100 - Dietetics Seminar (1)
- NTR 3300 - Organizational Behavior and Health Care Systems (3)
- NTR 4300 - Food Service Management (4)
- NTR 4450 - Medical Nutrition Therapy II (4)
- NTR 4600 - Community Nutrition Practicum (4)

As stated in the Nutrition B.S. Communication and Ethics Requirement (Item 3), dietetics specialization students are required to take the NTR 4200 - Communication and Counseling in Nutrition Practice and NTR 4500 - Professional Practice and Ethics in Nutrition to meet the Communication and Ethics requirements of the Nutrition major.

Applications for entry into the dietetics specialization

There is a competitive application process for entry into the dietetics specialization which includes the following requirements/ components.

- A minimum grade of B- in NTR 2500
- Grade point average for science courses (recommended minimum 2.
- Overall GPA (recommended minimum 2.8)
- Personal statement
- Application

To apply, students must complete (or be enrolled in*):

- BIO 1200 - Biology I (4)

- BIO 2600 - Human Physiology (4) and BIO 3621 - Physiology Laboratory (1) or BIO 2006 - Clinical Anatomy and Physiology (5)
- CDS 3300 - Microbiology of Infectious Diseases (3) or BIO 3500 - General Microbiology (4) or BIO 3520 - Introduction to Human Microbiology (4)
- CHM 1440 - General Chemistry I (4)
- CHM 1450 - General Chemistry II (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- EHS 2550 - Basic Statistics for Health Sciences (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)
- HS 3500 - Health Behavior Theories (3)
- NTR 1000 - Careers in Nutrition (1)
- NTR 2500 - Human Nutrition and Health (3)
- NTR 2650 - Nutrition Assessment Methods (3)
- NTR 2651 - Nutrition Assessment Methods Laboratory (1)
- PH 3000 - Introduction to Public Health (3)
- WRT 1060 - Composition II (4)

* Admittance will be conditional upon successful completion of courses in progress at the time of application

Graduation requirements

Students must complete all Nutrition courses with a minimum grade of C, achieve a minimum grade of B- in Community Nutrition Practicum and maintain a 2.5 cumulative GPA to graduate with a specialization in Dietetics. They must also have documented 20 hours of nutrition-focused community service or volunteer work.

Community Health Engagement Minor

A minor in Community Health Engagement is available to students in any degree program. The minor provides students with hands-on learning opportunities focused in real-world community settings to learn about health engagement in diverse populations. A minimum of 18 credits are required for the minor including 15 core credits and a minimum of 3 elective credits.

Core required courses for the minor (15 credits):

- HS 3440 - Introduction to Community Engagement (4)
- HS 3450 - Leadership and Healthcare (4)
- HS 3460 - Community Engaged Research Experience (4)
- PH 3000 - Introduction to Public Health (3) *
- Courses that satisfy the university general education requirements

Elective courses (minimum of 3 credits):

- AN 3220 - Medical Anthropology (4)
- HS 3430 - Sociology of Health and Medicine (4) or PH 4650 - Social Determinants of Health (4) or WHP 3700 - Culture, Ethnicity and Well-being (3)
- HS 4900 - Special Topics (2 TO 4)
- HS 4995 - Directed Study (1 TO 4)
- NTR 3120 - Community Nutrition (3)
- PH 4750 - Global Health and Social Issues (4)
- WHP 3700 - Culture, Ethnicity and Well-being (3)
- WHP 4350 - Environmental Justice (4)

Holistic Health Minor

A minor in Integrative Holistic Health is available to students in any degree program. A minimum of 18 credits are required for the minor including 15 core credits and a minimum of 3 elective credits.

Courses required for the minor (15 credits):

- HS 3410 - Integrative Holistic Health (3)
- HS 4430 - Modalities for Healing (3)
- HS 4440 - Healing Traditions (3)
- HS 4450 - Laughter as Therapeutic Modality (3)
- HS 4460 - Mindfulness (3)

Choose at least 3 credits of electives from the following courses:

- AN 3220 - Medical Anthropology (4)
- EXS 4650 - Yoga Therapy (3)

- HS 2150 - Stress Management (3)
- HS 3400 - Contemporary Topics in Health (3)
- HS 3430 - Sociology of Health and Medicine (4) or WHP 3700 - Culture, Ethnicity and Well-being (3)
- HS 4900 - Special Topics (2 TO 4)
- HS 4995 - Directed Study (1 TO 4)
- NTR 3210 - Herbs Supplements Nutrition (2)
- PH 4650 - Social Determinants of Health (4)
- PSY 3180 - Biological Psychology (4)
- PSY 3450 - Health Psychology (4)

Nutrition and Health Minor

A minor in Nutrition and Health is available to students in any degree program. A minimum of 19 credits are required for the minor including 17 core credits and 2 elective credits. A minimum grade of C is required in each course for the minor.

Core courses (17 credits):

- NTR 2500 - Human Nutrition and Health (3)
- NTR 2650 - Nutrition Assessment Methods (3)
- NTR 2651 - Nutrition Assessment Methods Laboratory (1)
- NTR 4100 - Nutrition and Lifecycles (4)
- NTR 3120 - Community Nutrition (3)
- NTR 3140 - Food, Nutrition, and Culture (3) *
- * Courses that satisfy the university general education requirement

Elective courses (minimum of 2 credits):

- BIO 3360 - Organic Farming (4)
- BIO 3361 - Applied Organic Farming (1)
- NTR 2700 - Introduction to Food Science (3)
- NTR 2750 - Introduction to Cooking and Culinary Science (2)

- NTR 2800 - Plant-based Diet Nutrition (3)
- NTR 3200 - Nutrition and Physical Activity (2)
- NTR 3210 - Herbs Supplements Nutrition (2)
- NTR 3220 - Eating Disorders (2)
- NTR 3230 - Foodborne Illnesses (2)
- NTR 3260 - Food Politics (2)
- NTR 3300 - Organizational Behavior and Health Care Systems (3)
- NTR 4350 - Nutrient Metabolism (4)

Department of Public and Environmental Wellness

Applied Health Sciences

The Applied Health Sciences (AHS) program is designed to allow students to obtain a Bachelor of Science degree by combining courses from the university curriculum with specific Associate of Applied Sciences (AAS) degrees from accredited community colleges. This two-plus-two degree completion program allows students to transfer up to 84 credits after completing an AAS degree in a health related field; such as dental assistant, medical assistant, occupational therapy assistant, pharmacy technician, physical therapist assistant, respiratory therapist, or surgical technician.

Environmental Health and Safety Program

Environmental Health and Safety (EHS) is a specified branch of the health engineering professions, focusing on environmental protection and occupational safety. The EHS profession applies fundamental exposure assessment techniques (both qualitative and quantitative) for environmental health protection, particularly, the physiological and/or toxicological interactions of physical, chemical, biological, mechanical, electrical and ergonomic agents, factors, and/or stressors with the human body.

A one-semester internship in the senior year of the program provides students with first-hand field experience in the practice of environmental health and safety. Internship placements are approved and monitored by the program director and include manufacturing, insurance, health care, energy and engineering, construction, service, consulting, labor, and government organizations.

High-achieving students who would like to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently should pursue the EHS B.S. to Safety Management, MSSM, Combined B.S. - MSSM.

Wellness and Health Promotion Program

The Wellness and Health Promotion (WHP) program prepares entry-level employment in a variety of health, commercial, industrial, government, hospital, community and non-profit organizations. A parallel secondary function of the WHP program prepares students for entry to graduate programs of study in fields such as exercise science, health education, human resources, public health, and related professional and medical fields.

High-achieving students who would like to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently should pursue the WHP, Combined B.S. - MPH degree program. Additionally, the School of Health Sciences and the School of Nursing have partnered to create the Wellness and Health Promotion (WHP) to Accelerated Second-Degree (ASD) Bachelor of Science in Nursing (BSN) pathway.

Applied Health Sciences, B.S.

The Applied Health Sciences (AHS) program is designed to allow students to obtain a Bachelor of Science degree by combining courses from the university curriculum with specific Associate of Applied Sciences (AAS) degrees from accredited community colleges.

Requirements for the major in Applied Health Sciences, B.S.

1. Have already completed the course requirements for and earned the Associate of Applied Science degree in a health-related field from an accredited community college or other institution of higher education:

Students who hold an AAS degree in another field must seek permission to enroll from the Applied Health Sciences Program Coordinator.

2. Provide appropriate documentation of the AAS degree:

Submit official transcripts showing AAS degree and all coursework completed with a minimum 2.0 GPA. Concurrent enrollment in a community college AAS program and Oakland University's AHS program is not permitted.

3. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

4. Complete the following core courses:

- AHS 3320 - Delivering Safe Patient Care (4) (not required for Radiologic Technology Leadership or Orthotics & Prosthetics Assistant Studies Specializations)

- AHS 3340 - Hospital Safety and Health (4) (not required for Radiologic Technology Leadership or Orthotics & Prosthetics Assistant Studies Specializations)
- HS 2000 - Introduction to Health and Health Behaviors (3) * (not required for Radiologic Technology Leadership Specialization)
- HS 4500 - Ethics in Health Care (4) *
- PH 3000 - Introduction to Public Health (3) * (or WHP 3700 for Radiologic Technology Leadership Specialization and Orthotics and Prosthetics Assistant Studies Specialization ONLY)

*Courses that also satisfy the university general education requirement

5. Select and complete the course requirements specified under one of the following concentrations or specializations:

- Applied Health Sciences, B.S., Concentration in Health Care Leadership*
- Applied Health Sciences, B.S., Concentration in Health Promotion*
- Applied Health Sciences, B.S., Specialization in Radiologic Technology Leadership
- Applied Health Sciences, B.S., Specialization in Orthotist and Prosthetist Assistant Studies

* Number of elective credits required for the concentration(s) varies based on courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 credits with a minimum of 32 upper level (3000-4000) credits and satisfy all University degree requirements to graduate.

Applied Health Sciences, B.S., Concentration in Health Care Leadership

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Applied Health Sciences, B.S., Concentration in Health Care Leadership

Number of elective credits required for the concentration varies based on courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 credits with a minimum of 32 upper level (3000-4000) credits and satisfy all University degree requirements to graduate.

Students pursuing the health care leadership concentration must complete the degree requirements for the major in Applied Health Sciences, B.S. and take a minimum of 20 credits of electives from the following:

- HRD 3100 - Introduction to Human Resource Development (4)

- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3230 - Fundamentals of Human Interaction (4)
- HRD 3510 - Principles of Leadership (4)
- HRD 3600 - Lean Principles and Practices in Organizations (4)
- WHP 3600 - Wellness Facilitation (4)
- WHP 3800 - Persuasion and Marketing in Health Promotion (4)

Applied Health Sciences, B.S., Concentration in Health Promotion

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Applied Health Sciences, B.S., Concentration in Health Promotion

Number of elective credits required for the concentration varies based on courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 credits with a minimum of 32 upper level (3000-4000) credits and satisfy all University degree requirements to graduate.

Students pursuing the health promotion concentration must complete the degree requirements for the major in Applied Health Sciences, B.S. and take a minimum of 20 credits of electives from the following:

- AHS 3310 - Health Care Safety (4)
- CDS 2010 - Careers in Clinical and Diagnostic Sciences (1)
- CDS 2070 - Health Care Systems Around the World (3)
- CDS 2100 - Medical Terminology (1)
- CDS 2250 - Clinical Laboratory Theory and Techniques (2)
- CDS 3300 - Microbiology of Infectious Diseases (3)
- CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)
- CDS 4000 - Medical Genetics (4)
- CDS 4010 - Human Pathology (4)
- CDS 4020 - Molecular Diagnostics (3)
- CDS 4140 - Hematology/Hemostasis I (3)

- CDS 4150 - Hematology/Hemostasis Laboratory I (1)
- CDS 4160 - Hematology/Hemostasis II (4)
- CDS 4170 - Hematology/Hemostasis Laboratory II (1)
- CDS 4230 - Medical Immunology (3)
- CDS 4240 - Immunohematology (3)
- CDS 4241 - Immunohematology Laboratory (1)
- CDS 4250 - Medical Biochemistry (4)
- CDS 4270 - Clinical Chemistry (4)
- CDS 4280 - Clinical Chemistry Laboratory (1)
- CDS 4300 - Clinical Microbiology (4)
- CDS 4350 - Clinical Parasitology, Mycology, Virology (3)
- CDS 4360 - Clinical Parasitology, Mycology, Virology Lab (1)
- CDS 4400 - Clinical Correlations (3)
- CDS 4900 - Special Topics (1 TO 4)
- CHM 1440 - General Chemistry I (4)* and CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)
- EHS 2250 - Environmental Health and Safety Training Methods (3)
- EHS 2350 - Occupational Safety and Health Standards (3)
- EHS 2450 - Professional Practice and Leadership Development (3)
- EHS 3300 - Safety and Health Administration and Programs (3)
- EHS 3330 - Fire Prevention and Protection (3)
- EHS 3380 - Environmental Health and Safety Engineering and Technology (3)
- EHS 3420 - Advanced Quantitative Methods for Environmental Health and Safety (4)
- EHS 4100 - Fundamentals of Occupational Hygiene (3)
- EHS 4200 - Applied Environmental and Occupational Hygiene (4)
- EHS 4230 - Radiation Safety (3)
- EHS 4340 - Ventilation and Emerging Technologies (4)
- EHS 4350 - Radiation Exposure Control (2)

- EHS 4410 - Accident/Incident Investigation and Analysis (3)
- EHS 4420 - Construction Safety (3)
- EHS 4430 - Robotic and Automation System Safety Analysis (3)
- EHS 4440 - Environmental Standards (3)
- EHS 4450 - Ergonomics (3)
- EHS 4460 - Industrial and Environmental Toxicology (3)
- EHS 4500 - Medical Geology (Geo-Medicine) (4)
- EXS 2200 - Introduction to Exercise Science (2)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- EXS 3010 - Exercise Physiology (3)
- EXS 3015 - Exercise Physiology Laboratory (1)
- EXS 3020 - Biomechanics (3)
- HS 2150 - Stress Management (3)
- HS 3250 - Research Methods in Health Sciences (3)
- HS 3400 - Contemporary Topics in Health (3)
- HS 3410 - Integrative Holistic Health (3)
- HS 3430 - Sociology of Health and Medicine (4)
- HS 3440 - Introduction to Community Engagement (4)
- HS 3450 - Leadership and Healthcare (4)
- HS 3460 - Community Engaged Research Experience (4)
- HS 3500 - Health Behavior Theories (3)
- HS 4430 - Modalities for Healing (3)
- HS 4440 - Healing Traditions (3)
- HS 4450 - Laughter as Therapeutic Modality (3)
- HS 4460 - Mindfulness (3)
- HS 4550 - Qualitative Research Methods (4)
- HS 4900 - Special Topics (2 TO 4)
- HS 4995 - Directed Study (1 TO 4)
- NTR 2500 - Human Nutrition and Health (3)

- NTR 2650 - Nutrition Assessment Methods (3)
- NTR 2651 - Nutrition Assessment Methods Laboratory (1)
- NTR 2700 - Introduction to Food Science (3)
- NTR 2750 - Introduction to Cooking and Culinary Science (2)
- NTR 3120 - Community Nutrition (3)
- NTR 3140 - Food, Nutrition, and Culture (3)
- NTR 3200 - Nutrition and Physical Activity (2)
- NTR 3210 - Herbs Supplements Nutrition (2)
- NTR 3220 - Eating Disorders (2)
- NTR 3230 - Foodborne Illnesses (2)
- NTR 3260 - Food Politics (2)
- NTR 4100 - Nutrition and Lifecycles (4)
- NTR 4200 - Communication and Counseling in Nutrition Practice (4)
- NTR 4300 - Food Service Management (4)
- NTR 4350 - Nutrient Metabolism (4)
- PH 3350 - Principles of Environmental Health Sciences (4)
- PH 4650 - Social Determinants of Health (4)
- PH 4750 - Global Health and Social Issues (4)
- PHY 1010 - General Physics I (4)* and PHY 1100 - General Physics Lab I (1)
- PHY 1020 - General Physics II (4)* and PHY 1110 - General Physics Lab II (1)
- WHP 3500 - Health Program Implementation (4)
- WHP 3600 - Wellness Facilitation (4)
- WHP 3700 - Culture, Ethnicity and Well-being (3)
- WHP 3800 - Persuasion and Marketing in Health Promotion (4)
- WHP 4000 - Assessment and Interventions in Wellness (4)
- WHP 4030 - Laboratory in Assessment and Interventions (4)
- WHP 4350 - Environmental Justice (4)
- WHP 4900 - Special Topics (1 TO 4)

Applied Health Sciences, B.S., Specialization in Orthotics and Prosthetics Assistant Studies

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Applied Health Sciences, B.S., Specialization in Orthotics and Prosthetics Assistant Studies

1. Have earned the Orthotist/Prosthetist Technician Associate degree from an accredited institution of higher education with a minimum 2.0 GPA:

Concurrent enrollment in a community college AAS program and Oakland University's AHS program is not permitted. Students who hold an AAS degree in any other medical or health-related field not listed above may seek permission to enroll from the Applied Health Sciences Program Coordinator.

2. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

3. Complete core courses for the major in Applied Health Sciences, B.S.

Students pursuing the orthotics and prosthetics assistant studies specialization must complete the degree requirements for the major in Applied Health Sciences, B.S.

4. Complete the following required courses:

- CDS 2100 - Medical Terminology (1)
- EXS 2510 - Laboratory Safety (1)
- EXS 2520 - Practice Management (1)
- EXS 3510 - Clinical Assessments (3)
- EXS 3520 - Material Characteristics (2)
- EXS 3530 - Patient Management (1)
- EXS 3540 - Fit, Function and Modifications (3)
- EXS 3550 - Neuropathic Disorders (1)
- EXS 4510 - Spinal Orthotics (2)
- EXS 4520 - Upper Extremity Orthotics (2)

- EXS 4530 - Lower Extremity Orthotics (3)
- EXS 4540 - Upper Extremity Prosthetics (3)
- EXS 4550 - Lower Extremity Prosthetics (3)
- HS 3250 - Research Methods in Health Sciences (3)

Additional Information

If students need additional credits to obtain the required 120 credits for graduation, they can choose elective courses from either the Health Promotion or Health Care Leadership concentrations in AHS.

Applied Health Sciences, B.S., Specialization in Radiologic Technology Leadership

A Radiologic (X-ray) Technologist is a professional responsible for the administration of ionizing radiation for diagnostic or research purposes. The radiologic technologist must integrate complex knowledge and advanced technical skills in the imaging of internal structures. Radiologic technologists apply knowledge of anatomy, physiology, positioning and radiographic technique in the performance of their duties.

This degree is designed to allow the radiologic technology professional to transfer their current degree and professional credentials to the university in order to complete a higher degree. This degree is appropriate for American Registry of Radiologic Technologists (ARRT) registered radiologic technologists who have already completed an associate's degree and would like to advance their education by completing a bachelor's degree.

Admission

1. To be admitted to the Applied Health Sciences, B.S., Specialization in Radiologic Technology Leadership the student must:
2. Complete the Oakland University application process. Students admitted to OU SHS with an Associate's Degree from an accredited community college, may transfer a maximum of 88 credits. Completion of General Education Requirements through the Michigan Transfer Agreement or Out of State Transfer Policy or at Oakland University.

Additional 28 Prior Learning credits

Oakland University awards an additional 28 prior learning credits for successful completion of the AART (American Registry of Radiologic Technologists)

Grade point policy

Students in the radiologic technology leadership specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation.

In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Radiologic technology leadership specialization professional course requirements

Students pursuing the radiologic technology leadership specialization must complete the degree requirements for the major in Applied Health Sciences, B.S., and take the following courses for the specialization:

- HS 3250 - Research Methods in Health Sciences (3)
- HS 3450 - Leadership and Healthcare (4)

And a minimum of 18 elective credits from the following courses:

- AHS 3320 - Delivering Safe Patient Care (4)
- AHS 3340 - Hospital Safety and Health (4)
- COM 3402 - Communication in Leadership (4)
- HRD 3100 - Introduction to Human Resource Development (4)
- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3230 - Fundamentals of Human Interaction (4)
- HRD 3430 - Staffing, Performance Evaluation and Interaction within Organizations (4)
- HRD 3600 - Lean Principles and Practices in Organizations (4)
- HRD 4200 - Change Process and Organizational Analysis (4)
- HS 3500 - Health Behavior Theories (3)
- HS 4460 - Mindfulness (3)
- MGT 3000 - Survey of Management (3)
- RAD 4801 - Computed Tomography (6) *
- RAD 4803 - Magnetic Resonance Imaging (7) *
- RAD 4804 - Mammography (6) *

Or any other course approved by the program director in writing through the approved petition of exception form

*Advanced Modalities for Radiologic Technologists

Professionals who are currently American Registry of Radiologic Technologists (ARRT) registered may expand on their existing knowledge in the areas of Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Mammography, in affiliation with Beaumont Health. Each course is approximately one semester (15 - 17 weeks) in length and includes three to four days of clinical and one three-hour class day per week. Clinical hours take place on days and afternoon shifts at various Beaumont Health locations. Other clinical sites, locations and hours of attendance may be required. Clinical shifts vary based on the clinical rotation schedule, as assigned. With permission, additional clinical time may be allowed. Didactic coursework may be offered online. These advanced modality courses demand a high level of student professionalism, personal commitment, and academic focus.

Students may apply for admission to one of the modality courses listed above (*), through the Radiologic Technology program application process. Applicants are required to hold current ARRT registration or become registered with the ARRT within two weeks after the modality course start date and they must also hold current CPR ("Healthcare Provider") certification through the American Heart Association. Applications are accepted year round and the courses may be scheduled any semester based on the number of applicants. Acceptance into a modality course is based on previous math and science grade point average, personal interview, and letters of recommendation.

Environmental Health and Safety, B.S.

The Bachelor of Science in Environmental Health and Safety (EHS) degree within the Department of Public and Environmental Wellness provides a course-based and experiential education in environmental health, occupational safety and industrial hygiene concepts. This specialized discipline focuses on protecting people, property and the environment.

Students will develop expertise in identifying risks, evaluating and mitigating hazards before they cause damage or harm. Graduates of the program are prepared to become effective safety and health professionals.

The Bachelor of Science in Environmental Health and Safety is accredited by the American Board of Engineering and Technology (ABET).

Requirements for the B.S. degree with a major in Environmental Health and Safety

Students seeking the Bachelor of Science degree with a major in Environmental Health and Safety must complete a minimum of 120 credits, including the following requirements:

1. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the Environmental Health and Safety required courses

- BIO 1002 - Human Biology (4) or BIO 1200 - Biology I (4)
- CHM 1040 - Introduction to Chemical Principles (4)
- CHM 2010 - Introduction to Organic and Biological Chemistry (4)
- EHS 1100 - Healthy Workplace: Protecting People and the Environment (3)*
- EHS 2250 - Environmental Health and Safety Training Methods (3)
- EHS 2350 - Occupational Safety and Health Standards (3)
- EHS 2450 - Professional Practice and Leadership Development (3)
- EHS 2550 - Basic Statistics for Health Sciences (3) * or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) *
- EHS 3300 - Safety and Health Administration and Programs (3)
- EHS 3330 - Fire Prevention and Protection (3)
- EHS 3380 - Environmental Health and Safety Engineering and Technology (3)
- EHS 4100 - Fundamentals of Occupational Hygiene (3)
- EHS 4200 - Applied Environmental and Occupational Hygiene (4)
- EHS 4410 - Accident/Incident Investigation and Analysis (3)
- EHS 4420 - Construction Safety (3)
- EHS 4430 - Robotic and Automation System Safety Analysis (3)
- EHS 4440 - Environmental Standards (3)
- EHS 4450 - Ergonomics (3)
- EHS 4460 - Industrial and Environmental Toxicology (3)
- EHS 4550 - Environmental Pollution and Controls (3)
- EHS 4950 - Environmental Health and Safety Capstone Course Internship (4) (may only be taken with permission of the EHS program director)
- HS 2000 - Introduction to Health and Health Behaviors (3)

- PHY 1200 - The Physics of Everyday Life (4) * or PHY 1010 - General Physics I (4) *
- PSY 1000 - Introduction to Psychology (4) *
- MGT 1100 - Contemporary World Business (4) *
- WRT 3082 - Business Writing (4)
- *In lieu of EHS 1100 (3), students may substitute EHS 1000 (1) or EHS 1150 (2)

3. Elective credits

Minimum 14 credits

- AHS 3310 - Health Care Safety (4)
- AHS 3340 - Hospital Safety and Health (4)
- EHS 3250 - Quantitative Methods for Environmental Health and Safety (4)
- EHS 3510 - Noise Control and Measurement (2)
- EHS 4230 - Radiation Safety (3)
- EHS 4340 - Ventilation and Emerging Technologies (4)
- EHS 4350 - Radiation Exposure Control (2)
- EHS 4998 - Environmental Health and Safety Research (3)
- ENV 3540 - Global Environmental Governance (4) or PS 3730 - Global Environmental Governance (4)
- HRD 3100 - Introduction to Human Resource Development (4)
- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3300 - Instructional Design (4)
- HRD 3440 - Introduction to Labor and Employment Relations (4)
- HRD 3445 - Introduction to Public Sector Labor and Employment Relations (4)
- HRD 4410 - The Study of Labor and Work Organizations (4)
- HRD 4440 - Civil Rights and Regulations in Employment (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- HRD 4300 - Instructional Methods (4)
- MGT 3000 - Survey of Management (3)
- PH 3000 - Introduction to Public Health (3) *
- PHL 1300 - Introduction to Ethics (4)

- POM 3000 - Survey of Operations Management (3)
- WRT 1050 - Composition I (4)

or any other course approved by the program director in writing through the approved petition of exception form

Grade Point Policy

Environmental Health and Safety majors must achieve minimum course grades of C in all math and science courses. Environmental Health and Safety majors and minors must achieve minimum course grades of C+ in all required EHS courses. If a student earns a final course grade below the minimum, they should meet with their academic adviser and must repeat the course in which the unsatisfactory grade was earned.

Internship

EHS students must register for EHS 4950 - Environmental Health and Safety Capstone Course Internship (4). It is highly encouraged that students complete additional internships and they are not required to register for these as long as they have registered for EHS 4950 and completed at least one.

Environmental Health and Safety, B.S. completion sequence for Certified Safety Professionals

The School of Health Sciences offers the Certified Safety Professional (CSP) an opportunity to earn a Bachelor of Science in Environmental Health and Safety (EHS) through a CSP to BS EHS completion program. The student outcomes and educational objectives established for the BS EHS program are the same for traditional and CSP students, including course objectives and teaching methodologies . Students who have satisfactorily completed a regionally accredited associate or baccalaureate degree and who possess a valid, current CSP certification may apply for admission to the CSP to BS EHS degree completion program. A cumulative GPA of C+ or better is required for admission to the CSP to BS EHS degree completion sequence. Certified safety professionals with a grade below C+ may be admitted to the University under pre-CSP EHS status and change to CSP BS EHS status upon completion of a minimum of 12 credits (applicable to the EHS program) at Oakland University with a minimum grade of C+. Certified safety professionals must complete all credits and/or courses required in the BS EHS degree program. Completion may be achieved in the following manner:

1. Graduates from a regionally accredited associate or bachelor degree program

Twenty-two (22) Environmental Health and Safety credits will be granted through a course competency process. This process includes:

- Successful completion of the CSP examination
- Evidence of a valid, current CSP certification

- Registration for competency credits as per the OU Undergraduate Catalog
- Registration for approved competency credit courses to include EHS 1100, EHS 2250, EHS 2350, EHS 3300, EHS 3380, EHS 4410, and EHS 4420

2. Students seeking a Bachelor of Science degree with a major in Environmental Health and Safety

Must complete a minimum of 120 credits as outlined in the official Oakland University catalog. The minimum required courses may be satisfied through a combination of credits delivered by Oakland University, transfer credits from regionally accredited institutions of higher education, and CSP competency credits. A minimum of 32 credits must be upper division credits from Oakland University.

Environmental Health and Safety, B.S. completion sequence for MIOSHA Training Institute Certificate holders

The Michigan Occupational Safety and Health Administration (MIOSHA) and Oakland University formed a new alliance establishing the MIOSHA Training Institute (MTI) to Bachelor of Science in Environmental Health and Safety Degree Program. This new program is available to those students who have a valid MTI Level 2 Safety and Health Management Systems (SHMS) certificate. Students who have the aforementioned certificate from MTI are eligible to receive up to 12 credits toward the Bachelor of Science in Environmental Health and Safety at Oakland University.

Students seeking a Bachelor of Science degree with a major in Environmental Health and Safety (EHS) must complete a minimum of 120 credits as outlined above. The minimum required courses may be satisfied through a combination of credits delivered by Oakland University, transfer credits from regionally accredited institutions of higher education, and MTI competency credits. A minimum of 32 credits must be upper division credits from Oakland University.

In order to receive a B.S. in EHS degree, each student must meet all the requirements of the program published in this catalog.

Courses for which are eligible for competency credit through the MTI-OU program are:

- EHS 1100 - Healthy Workplace: Protecting People and the Environment (3)
- EHS 2350 - Occupational Safety and Health Standards (3)
- EHS 3300 - Safety and Health Administration and Programs (3)
- EHS 4410 - Accident/Incident Investigation and Analysis (3) *In lieu of EHS 1100 (3), students may substitute EHS 1000 (1) and EHS 1150 (2)

Environmental Health and Safety, B.S. completion agreement for Trinidad State Junior College Associate Degree holders

The School of Health Sciences offers holders of an associate degree in Occupational Safety and Health from Trinidad State Junior College (TSJC) an opportunity to earn a Bachelor of Science in Environmental Health and Safety (EHS) through an articulation agreement. The student outcomes and educational objectives established for the BS EHS program are the same for traditional and TSJC students, including course objectives and teaching methodologies.

Students seeking a Bachelor of Science degree with a major in Environmental Health and Safety (EHS) must complete a minimum of 120 credits as outlined above. The minimum required courses may be satisfied through a combination of credits delivered by Oakland University and up to 70 transfer credits from Trinidad State Junior College. A minimum of 32 credits must be upper division credits from Oakland University.

Students who have satisfactorily completed an Associate Degree in Occupational Health and Safety (OSH) at TSJC may apply for admission to the BS EHS degree completion program at Oakland University. These students will have the following benefits:

1. PSY 1000 - Introduction to Psychology will count in Oakland University's Social Science General Education category
2. EHS 1100 - Healthy Workplaces: Protecting People and the Environment requirement will be satisfied
3. HS 2000 - Introduction to Health and Health Behaviors will be satisfied

EHS elective credits requirement will be satisfied.

Wellness and Health Promotion, B.S.

The Bachelor of Science in Wellness and Health Promotion (WHP) degree program in the Department of Public and Environmental Wellness prepares students to live and promote a healthy lifestyle. These professional skills are utilized in health enhancement, disease prevention, health education, health and fitness, corporate and worksite wellness, as well as human resource practice and management.

The WHP program offers two innovative degree pathways: the WHP Combined BS-MPH degree program, and the WHP to Accelerated Second-Degree (ASD) Bachelor of Science in Nursing (BSN).

Requirements for the B.S. degree with a major in Wellness and Health Promotion

Students seeking the Bachelor of Science degree in Wellness and Health Promotion must complete a minimum 120 credits, including the following requirements:

1. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the Wellness and Health Promotion core curriculum credits

- EHS 2550 - Basic Statistics for Health Sciences (3) * or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) *
- MGT 1100 - Contemporary World Business (4) *(satisfies writing intensive in general education)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- HRD 3300 - Instructional Design (4)
- HS 2000 - Introduction to Health and Health Behaviors (3) *
- HS 2150 - Stress Management (3)
- HS 3250 - Research Methods in Health Sciences (3) or PSY 2500 - Research Design in Psychology (4)
- HS 3400 - Contemporary Topics in Health (3)
- HS 4500 - Ethics in Health Care (4) or COM 3300 - Communication, Culture, and Belonging (4) or PS 3215 - The Politics of Race and Ethnicity (4) or PS 3730 - Global Environmental Governance (4) (satisfies writing intensive in the major)
- NTR 2500 - Human Nutrition and Health (3)
- PSY 1000 - Introduction to Psychology (4) *
- PSY 3450 - Health Psychology (4)
- WHP 2800 - Introduction to Health Literacy (4)
- WHP 3010 - Equitable Wellness for Diverse Populations (4)
- WHP 3500 - Health Program Implementation (4)
- WHP 3600 - Wellness Facilitation (4)
- WHP 3800 - Persuasion and Marketing in Health Promotion (4)
- WHP 4000 - Assessment and Interventions in Wellness (4)

- WHP 4030 - Laboratory in Assessment and Interventions (4)
- WHP 4950 - Internship in Wellness and Health Promotion (4)
- WRT 1060 - Composition II (4) *

Notes

Courses above with * after them also satisfy university general education requirements.

HS 2000 is a prerequisite for HS 3250, HS 3400, WHP 3500, WHP 3600, WHP 4000, WHP 4030, WHP 4950

3. Complete a minimum of 21 credit hours of electives

Electives can be chosen either from the following recommended courses or students can apply courses taken as part of a minor toward the elective requirements:

- AHS 3310 - Health Care Safety (4)
- AHS 3320 - Delivering Safe Patient Care (4)
- AHS 3340 - Hospital Safety and Health (4)
- HS 3440 - Introduction to Community Engagement (4)
- HS 3450 - Leadership and Healthcare (4)
- PH 3350 - Principles of Environmental Health Sciences (4)
- WHP 4350 - Environmental Justice (4)
- WHP 4850 - Population Health, Health Policy, and Healthcare Delivery (4)

or any course not required for the Wellness and Health Promotion degree or used to fulfill general education requirements.

Grade Point Policy

To graduate with the Wellness and Health Promotion (WHP) major a student must attain a cumulative grade point average of 2.75 in all School of Health Sciences coursework applied to the core curriculum of the major (School of Health Sciences coursework includes courses in EHS, EXS, HS, CDS, and WHP). Wellness and Health Promotion majors and minors must achieve minimum course grades of C+ in all required WHP courses. If students earn a grade below a C+, they must meet with the program coordinator to discuss their options.

Wellness and Health Promotion, B.S. to Accelerated Second Degree BSN Pathway

The School of Health Sciences (SHS) and the School of Nursing (SON) have partnered to create the Wellness and Health Promotion (WHP) to Accelerated Second-Degree (ASD) Bachelor of Science in Nursing (BSN) pathway. This pathway is for first-time Pre-Nursing freshman students who did not gain admission to the Basic BSN program after their first year of study. Up to five pre-nursing students will be offered automatic admission to the ASD program through the WHP-ASD pathway. Students on the WHP-ASD pathway must meet all of the following requirements to gain admission into the SON's ASD BSN track in the semester following degree attainment:

1. Completion of all nursing prerequisites in the first year of study with a minimum grade of B in each course and with no repeated coursework. These courses include BIO 1200, BIO 2006, CHM 1040, CHM 2010, PSY 1000, PHY 1100 (1000 or 1300 also accepted), and WRT 1060.
2. A combined grade point average of 3.2 or higher in BIO 1200, BIO 2006, CHM 1040, CHM 2010, and PSY 1000.
3. Completion of the B.S. in WHP with a 3.0 cumulative grade point average or higher.
4. No repeated courses in the B.S. in WHP.
5. Completion of CDS 3300 and CDS 3310 or BIO 3520, with a minimum grade of C.
6. Completion of PSY 2250 with a minimum grade of B-.
7. Adherence to Oakland University's undergraduate admission requirements for second-degree students, including the completion of a second-degree application through Undergraduate Admissions.

Environmental Health and Safety, B.S. to Safety Management, MSSM, Combined B.S. - MSSM

The Environmental Health and Safety Combined B.S. - MSSM degree plan is a bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a Master of Science in Safety Management degree in approximately one calendar year after completing a B.S. in Environmental Health and Safety. Students in this program complete 10 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 10-credits of graduate courses will be reclassified as a graduate student through Graduate Study.

Requirements for the Environmental Health and Safety, B.S. - MSSM Degree Plan

Students seeking the Combined B.S. - MSSM degree plan must complete a minimum 120 credits, including the following requirements:

1. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the Environmental Health and Safety required credits

- BIO 1002 - Human Biology (4) or BIO 1200 - Biology I (4)
- CHM 1040 - Introduction to Chemical Principles (4)
- CHM 2010 - Introduction to Organic and Biological Chemistry (4)
- EHS 1100 - Healthy Workplace: Protecting People and the Environment (3)**
- EHS 2250 - Environmental Health and Safety Training Methods (3)
- EHS 2350 - Occupational Safety and Health Standards (3)
- EHS 2450 - Professional Practice and Leadership Development (3)
- EHS 2550 - Basic Statistics for Health Sciences (3)* or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) *
- EHS 3300 - Safety and Health Administration and Programs (3)
- EHS 3330 - Fire Prevention and Protection (3)
- EHS 3380 - Environmental Health and Safety Engineering and Technology (3)
- EHS 4100 - Fundamentals of Occupational Hygiene (3)
- EHS 4200 - Applied Environmental and Occupational Hygiene (4)
- EHS 4410 - Accident/Incident Investigation and Analysis (3)
- EHS 4420 - Construction Safety (3)
- EHS 4430 - Robotic and Automation System Safety Analysis (3)
- EHS 4440 - Environmental Standards (3)
- EHS 4450 - Ergonomics (3)
- EHS 4460 - Industrial and Environmental Toxicology (3)
- EHS 4550 - Environmental Pollution and Controls (3)
- EHS 4950 - Environmental Health and Safety Capstone Course Internship (4) (may only be taken with permission of the EHS program director)
- HS 2000 - Introduction to Health and Health Behaviors (3)

- PHY 1200 - The Physics of Everyday Life (4) * or PHY 1010 - General Physics I (4) *
- PSY 1000 - Introduction to Psychology (4)
- MGT 1100 - Contemporary World Business (4) *
- WRT 3082 - Business Writing (4)

Note

Courses above with * after them also satisfy university general education requirements

**In lieu of EHS 1100 (3), students may substitute EHS 1000 (1) or EHS 1150 (2)

3. Complete a minimum of 14 credits of electives

- AHS 3310 - Health Care Safety (4)
- AHS 3340 - Hospital Safety and Health (4)
- EHS 3250 - Quantitative Methods for Environmental Health and Safety (4)
- EHS 3510 - Noise Control and Measurement (2)
- EHS 4230 - Radiation Safety (3)
- EHS 4340 - Ventilation and Emerging Technologies (4)
- EHS 4350 - Radiation Exposure Control (2)
- EHS 4998 - Environmental Health and Safety Research (3)
- ENV 3540 - Global Environmental Governance (4) or PS 3730 - Global Environmental Governance (4)
- HRD 3100 - Introduction to Human Resource Development (4)
- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3300 - Instructional Design (4)
- HRD 3440 - Introduction to Labor and Employment Relations (4)
- HRD 3445 - Introduction to Public Sector Labor and Employment Relations (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- HRD 4300 - Instructional Methods (4)
- HRD 4410 - The Study of Labor and Work Organizations (4)
- HRD 4440 - Civil Rights and Regulations in Employment (4)
- MGT 3000 - Survey of Management (3)
- PH 3000 - Introduction to Public Health (3) *

- PHL 1300 - Introduction to Ethics (4)
- POM 3000 - Survey of Operations Management (3)
- WRT 1050 - Composition I (4)

*or any other course approved by the program director in writing through the approved petition of exception form

Graduate Courses:

- EHS 5200 Advanced Safety and Health Administration (3)
- EHS 5400 Risk Assessment and Loss Control (3)
- EHS 5000 Introduction to EHS Research (4)

Note

If a student has a minimum overall GPA of 3.2, has at least junior standing, the student may apply to the Combined BS - MSSM program through the graduate office. Qualified applicants will be given a delayed admission to the MSSM program. (Full, formal admission will not take place until the student successfully completes their undergraduate degree with an overall GPA of 3.2).

A student accepted into the combined degree program continues his or her undergraduate degree with the substitution of three graduate courses as shown above.

Please note that students must be accepted into the combined degree program before taking any graduate level courses.

If a combined degree program student has successfully graduated with a BS degree and an overall GPA of 3.2, he or she is fully admitted to graduate MSSM program.

See graduate catalog for additional requirements for the combined B.S. - MSSM program.

All university and departmental requirements for the bachelor's and master's degree must be satisfied to earn both degrees. The full number of credit hours required for the bachelor's and master's degree must be completed; this includes the 10-credit hours of graduate courses completed as an undergraduate and approved to count towards the undergraduate and graduate degree requirements.

Wellness and Health Promotion, Combined B.S./MPH

The Wellness and Health Promotion, Combined B.S./MPH is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a Master of Public Health degree in approximately one calendar year after completing a B.S. in Wellness and Health Promotion. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have

earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through Graduate Study.

Requirements for the Wellness and Health Promotion, Combined B.S./MPH

Students seeking the Wellness and Health Promotion, Combined B.S./MPH plan must complete a minimum 120 credits, including the following requirements:

1. Meet the university general education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

2. Complete the Wellness and Health Promotion core curriculum credits

- EHS 2550 - Basic Statistics for Health Sciences (3) * or STA 2220 - Introduction to Statistical Concepts and Reasoning (4)
- MGT 1100 - Contemporary World Business (4) *(satisfies writing intensive in general education)
- EXS 2700 - Safety and First Aid in Exercise Settings (2)
- HRD 3300 - Instructional Design (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)
- HS 2150 - Stress Management (3)
- HS 3250 - Research Methods in Health Sciences (3)
- HS 3400 - Contemporary Topics in Health (3)
- HS 4500 - Ethics in Health Care (4) or COM 3300 - Communication, Culture, and Belonging (4) or PS 3215 - The Politics of Race and Ethnicity (4) or PS 3730 - Global Environmental Governance (4) (satisfies writing intensive in the major)
- NTR 2500 - Human Nutrition and Health (3)
- PSY 1000 - Introduction to Psychology (4)
- PSY 3450 - Health Psychology (4)
- WHP 2800 - Introduction to Health Literacy (4)
- WHP 3010 - Equitable Wellness for Diverse Populations (4)
- WHP 3500 - Health Program Implementation (4)
- WHP 3600 - Wellness Facilitation (4)

- WHP 3800 - Persuasion and Marketing in Health Promotion (4)
- WHP 4000 - Assessment and Interventions in Wellness (4)
- WHP 4030 - Laboratory in Assessment and Interventions (4)
- WHP 4950 - Internship in Wellness and Health Promotion (4)
- WRT 1060 - Composition II (4)

Note

Courses above with * after them also satisfy university general education requirements.

HS 2000 is a prerequisite for HS 3250, HS 3400, WHP 3500, WHP 3600, WHP 4000, WHP 4030, WHP 4950

Complete a minimum of 8 credits of electives

Students may choose electives from the following recommended course list or apply courses taken as part of a minor toward the elective requirements:

- AHS 3310 - Health Care Safety (4)
- AHS 3320 - Delivering Safe Patient Care (4)
- AHS 3340 - Hospital Safety and Health (4)
- PSY 2500 - Research Design in Psychology (4)
- WHP 3250 - Issues in Women's Health (4)
- WHP 4350 - Environmental Justice (4)
- WHP 4850 - Population Health, Health Policy, and Healthcare Delivery (4)
- Any 1000 or 2000 level course in EXS not listed above
- Any 1000, 2000 or 3000 level courses in HS not listed above
- Any 1000 or 2000 level course in EHS not listed above or any course not required for the Wellness and Health Promotion degree or used to fulfill general education requirements.

Graduate Courses:

- PH 5000 Foundations of Health Behavior and Health Education (4)
- PH 5100 Principles of Community-Based Participatory Research (4)
- PH 5200 Planning, Implementation, and Evaluation of Public Health Interventions (4)

Note

If a student has a minimum overall GPA of 3.2, has at least sophomore standing, and has completed: EHS 2550 (or STA 2220); HS 3250 (or PSY 2500); WHP 2800; and WHP 3500, the student may apply to the

Wellness and Health Promotion, Combined B.S./MPH program through the graduate office. Qualified applicants will be given a delayed admission to the MPH program. (Full, formal admission will not take place until the student successfully completes his or her undergraduate degree with an overall GPA of 3.0). Applications are due February 1.

A student accepted into the Wellness and Health Promotion, Combined B.S./MPH program continues his or her undergraduate degree with the substitution of three graduate courses as shown above.

Please note that students must be accepted into the Wellness and Health Promotion, Combined B.S./MPH program before taking any graduate level courses.

If a Wellness and Health Promotion, Combined B.S./MPH program student has successfully graduated with a BS degree and an overall GPA of 3.0, they are fully admitted to the graduate MPH program.

See graduate catalog for additional requirements for the Wellness and Health Promotion, Combined B.S./MPH program.

All university and departmental requirements for each bachelor's degree and master's degree must be satisfied to receive both degrees. The full number of credit hours required for the bachelor's and master's degree must be completed; this includes the 12-credit of graduate courses completed as an undergraduate and approved to count towards the undergraduate and graduate degree requirements.

Environmental Health and Safety Minor

A minor in Environmental Health and Safety is available to complement other majors in the School of Health Sciences and in other programs, such as human resource development, engineering, biology or chemistry. A minimum of 24 credit hours is required for a minor in Environmental Health and Safety.

Requirements for the environmental health and safety minor

- EHS 1100 - Healthy Workplace: Protecting People and the Environment (3)
- EHS 2250 - Environmental Health and Safety Training Methods (3)
- EHS 2350 - Occupational Safety and Health Standards (3)
- EHS 3300 - Safety and Health Administration and Programs (3)
- EHS 3380 - Environmental Health and Safety Engineering and Technology (3)
- EHS 4100 - Fundamentals of Occupational Hygiene (3)
- EHS 4410 - Accident/Incident Investigation and Analysis (3)
- EHS 4440 - Environmental Standards (3)

*In lieu of EHS 1100 (3), students may substitute EHS 1000 (1) or EHS 1150 (2)

Grade point policy

Environmental Health and Safety minors must achieve minimum course grades of C+ in all required EHS courses. If a student earns a final course grade below the minimum, they should meet with their academic adviser and must repeat the course in which the unsatisfactory grade was earned.

Environmental Science Minor

Program Website

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the liberal arts minor in environmental science

A minimum of 22 credits are required for the environmental science minor, distributed as follows:

1. Required courses

- ENV 3080 - Introduction to Environmental Studies (4)
- ENV 4521 - Environmental Management Systems (3)
- ENV 4610 - Environmental Law and Policies (3)

2. 12 credits of electives approved by the program director

Note

An approved concentration/minor authorization form must be filed three semesters prior to graduation.

Wellness and Health Promotion Minor

A minor of 20 credit hours in Wellness and Health Promotion is available to students majoring in other programs across the University.

The following courses are required for the minor in Wellness and Health Promotion

- WHP 2800 - Introduction to Health Literacy (4)
- WHP 3500 - Health Program Implementation (4)
- WHP 3800 - Persuasion and Marketing in Health Promotion (4)
- WHP 4000 - Assessment and Interventions in Wellness (4)
- WHP 4030 - Laboratory in Assessment and Interventions (4)

Note

HS 2000 is a prerequisite for WHP 3500, WHP 4000 and WHP 4030.

Department of InterProfessional Education

According to the Centre for the Advancement of Interprofessional Education in the United Kingdom and the World Health Organization, "interprofessional education occurs when two or more professions (students, residents and health workers) learn with, about, and from each other to enable effective collaboration and improve health outcomes."

InterProfessional Education

According to the Centre for the Advancement of Interprofessional Education in the United Kingdom and the World Health Organization, "interprofessional education occurs when two or more professions (students, residents and health workers) learn with, about, and from each other to enable effective collaboration and improve health outcomes."

CHEER - Community Health Engagement and Empowerment Research Lab

The Community Health Engagement and Empowerment Research (CHEER) Lab provides undergraduate students with hands-on training in research skills and opportunities to work on faculty-led research projects from different disciplines within the School of Health Sciences. Undergraduate students will have opportunities to work with community and academic partners, engage in professional networking, and gain valuable experience in the field of health research. These skills and experiences enhance student success in pursuing graduate training and health careers.

Requirements to participate in CHEER Lab

CHEER core curriculum courses

- IPE 1020 - CHEER Lab Research Skills Training (0)
- IPE 3020 - CHEER Lab Research Skills Applications (0)

ECLIPSE - Explorations in Collaborative Leadership and InterProfessional Education Program

The Explorations in Collaborative Leadership and InterProfessional Education (ECLIPSE) program at Oakland University is a novel leadership model designed to foster students' abilities to become leaders within and beyond our communities through diverse, student-centered, collaborative, and interprofessional experiences. The ECLIPSE program offers collaborative leadership and interprofessional education experiences in all majors within the SHS. Students engaged in the program develop the competencies of interprofessional education (communication, values, roles/responsibilities, and teamwork) through: 1) participation in ECLIPSE workshops; 2) reflections on interprofessional experiences in and outside of academic courses; 3) peer mentorship; and 4) a culminating community impact project. As students participate in ECLIPSE activities, mentoring, and other collaborative leadership experiences on and off campus, they submit reflections detailing the knowledge and skills

gained through their experiences. Students complete an e-portfolio, documenting their leadership experiences and personal growth over the course of their education at Oakland University.

Requirements to participate in ECLIPSE

Students interested in participating in ECLIPSE must have declared a School of Health Sciences major. Students can become involved in ECLIPSE at any time; however, those nearing the end of their degree should consult with the ECLIPSE Coordinator.

ECLIPSE core curriculum courses

- IPE 1000 - ECLIPSE I (0)
- IPE 1010 - ECLIPSE I A (0)
- IPE 2000 - ECLIPSE II (0)
- IPE 2010 - ECLIPSE II A (0)
- IPE 3000 - ECLIPSE III (0)
- IPE 3010 - ECLIPSE III A (0)
- IPE 4000 - ECLIPSE IV (0)
- IPE 4010 - ECLIPSE IV A (0)
- IPE 4500 - InterProfessional Education (3)
- IPE 4900 - Special Topics (0)

School of Business Administration

The School of Business Administration (SBA) undergraduate programs enable students to combine the intensive study of a functional area of business (i.e., accounting, actuarial science, finance, human resource management, management information systems, marketing or operations management) or business economics with a broad background in management. Alternatively, students can focus on economics, the fundamental discipline behind business processes. In these programs, a strong foundation in liberal arts is combined with a rigorous education in written and oral communications and in problem definition, analysis and resolution. This combination produces graduates who can think analytically, communicate effectively and work cooperatively with others of similar or diverse backgrounds in both domestic and international environments. Graduates of these programs are prepared to handle the increasingly complex and changing problems faced by managers in profit-oriented enterprises and not-for-profit organizations, both public and private.

Accreditation of School of Business Administration

The SBA is accredited, on both the undergraduate and the graduate levels, by AACSB International (The Association to Advance Collegiate Schools of Business), the premier business school accreditation agency. In addition, the accounting program has achieved the separate AACSB accounting accreditation.

Admission Criteria for School of Business Administration

Admission to major standing is selective. The minimum requirements for consideration are:

1. Student's admissibility to and retention in the university;
2. Completion of the writing requirement;
3. A minimum grade-point average of 2.6 in all courses taken at Oakland University (with a minimum of six credits completed at Oakland University);
4. A minimum grade of C in each of the pre-core courses or their equivalents
5. Satisfactory completion of SBC1990 and SBC2990;
6. Submission of an "Application for Major Standing" for the desired major

A student is classified as pre-business upon admission to Oakland University if they have a cumulative GPA of 2.80 or above and four years of college preparatory math. Transfer students are classified as pre-business if they have a cumulative transfer GPA of 2.80 or above and math through intermediate algebra. A student is classified as Direct admit into their business major if they have a high school cumulative GPA of 3.7 or higher. All other students are classified as undecided business and these students cannot register for most 3000- and 4000-level courses until they obtain pre-business or major standing status within the SBA. Undecided business students may register for all SBA pre-core courses and general education requirements.

To maintain pre-business status before obtaining major standing within the SBA, an OU student must maintain a cumulative GPA set by the SBA. Any pre-business student (SBA students not yet having major standing) who does not maintain an OU cumulative GPA (as set by the SBA) at the end of any term is classified as an undecided business student. The GPA set by the SBA for pre-business status is 2.6.

All students who are not business majors in the School of Business Administration, whether they have applied for a minor or not, are limited to no more than 25 percent of their total degree credits required for their degree in business courses (usually 32 credits). The maximum of 25 percent of total degree credits includes courses taken at Oakland University and all previous colleges. Economics (ECN) courses and QMM2400, QMM2410, QMM4400 and QMM4520 are excluded from this requirement. Therefore, students from majors outside the business administration program, including economics majors in either the School of Business Administration or the College of Arts and Sciences, may not earn more than 25 percent of their required total degree credits in transfer plus Oakland credits in ACC, FIN, MGT, MIS, MKT, ORG, POM or QMM courses (excluding those noted above). Economics majors and students from other majors at Oakland University may take 1000-and-2000 level SBA courses as long as they have all the prerequisite courses with the required grades. Economics majors and students from non-business majors at Oakland University must have an approved university concentration/minor authorization form to take 3000-and-4000 level SBA courses which have the prerequisite of major standing.

All transfer courses from another institution need to be a minimum of three credits for the SBA to evaluate them for transfer credit for pre-core, core, and major courses and must have a minimum grade of C to meet the requirement.

School/College Honors

School honors are awarded by the SBA to graduating students who have completed a minimum of 32 credits in SBA courses with a minimum GPA of 3.33 in courses offered in the school.

Department of Accounting and Finance

Through the dedicated guidance of expert faculty, students in Oakland University's accounting and finance programs gain insight into the intricacies of complex industries. A rigorous curriculum and active student organizations connected with established professionals prepare students to launch successful careers.

Oakland University's School of Business Administration is one of only a small percentage of business schools around the world to hold the elite AACSB-International accreditation in both its business and accounting programs.

Business Administration, Accounting, B.S.

The Accounting major will prepare students for careers in public accounting, industry and government. Accounting professionals are individuals capable of doing more than maintaining sets of accounting records as they focus on analyzing and measuring business activity, processing that data into reports and communicating the information to decision makers. Accountants apply their skills in areas such as auditing, cost management, financial analysis, information systems, management, policy and taxation. Accounting is often the pathway to top management of a corporation.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Accounting, B.S.

Students seeking the Bachelor of Science degree in Accounting must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)

- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Accounting required courses

- ACC 3990 - ACHIEVE III - Accounting (0)
- ACC 4001 - Intermediate Financial Accounting I (3)
- ACC 4002 - Intermediate Financial Accounting II (3)
- ACC 4003 - Managerial and Cost Accounting II (3)
- ACC 4180 - Accounting Information Systems: Planning and Analysis (3)

Complete four Accounting (ACC) elective courses

- ACC 4150 - Introduction to Taxation (3) or ACC 5150 - Introduction to Taxation (3)
- ACC 4220 - Auditing (3) or ACC 5220 - Auditing (3)
- ACC 4240 - Government and Not-for-Profit Accounting (3) or ACC 5240 - Government and Not-for-Profit Accounting (3)
- ACC 4310 - Advanced Financial Accounting (3) or ACC 5310 - Advanced Financial Accounting (3)
- ACC 4900 - Special Topics in Accounting (3)
- ACC 4996 - Independent Study (1 TO 3)
- ACC 5050* - Business Law for Accounting and Finance (3)
- ACC 5210* - Federal Income Tax II (3)
- ACC 5260* - AIS: Audit and Control (3)
- ACC 5500* - Tax Research, Planning, and Administration (3)

*Course may be counted as an Accounting elective with the permission of the Faculty Director of Accounting Programs or Accounting and Finance Department Chair

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Because of specific examination requirements, students who plan to take a professional accounting examination (CPA, CMA or CIA) should discuss their options with a faculty major adviser before enrolling in 4000-level accounting courses.

Business Administration, Finance, B.S.

By focusing on managing current and future figures of a business or organization, finance professionals are often responsible for predicting and analyzing the potential for profit and growth, assessing resources, utilizing statistics and reports. Finance can be a good choice for people who are inquisitive, ambitious problem solvers. A bachelor's degree in finance is a great starting point for careers in financial services, across business, banking and consultancy sectors.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Finance, B.S.

Students seeking the Bachelor of Science degree in Finance must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)

- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Finance (FIN) required courses

- ACC 3010 - Financial Reporting and Analysis (3) *
- FIN 3600 - Investment Analysis (3)
- FIN 3680 - Financial Modeling (3)
- FIN 3720 - Managerial Finance II (3)
- FIN 3990 - ACHIEVE III - Finance (0)

*In lieu of ACC 3010 (3), students may substitute both ((ACC 3100 (3) and ACC 3110 (3)) or (ACC 4001 (3) and ACC 4002 (3)).

Complete three Finance elective courses

- FIN 4180 - Financial Markets and Institutions (3)
- FIN 4190 - International Financial Management (3)
- FIN 4200 - Real Estate Investment Analysis (3)
- FIN 4250 - Financial Derivatives (3)
- FIN 4300 - Mergers and Acquisitions and Corporate Restructuring (3)
- FIN 4360 - Managing Investment Funds (3)
- FIN 4600 - Investment Portfolio Management (3)
- FIN 4900 - Special Topics in Finance (3)

*ACC 3200 (3) or ACC 4003 (3) or ACC 3500 (3) or ACC 4150 (3) may be substituted for one finance elective.

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

If an Actuarial Science student wants to switch to a Finance major, they can use FIN 3550 to satisfy the FIN 3220 requirement, but will still need to take FIN 3720. If a Finance major student wants to switch to an Actuarial Science major, they will need to use both FIN 3220 and FIN 3720 to satisfy the FIN 3550 requirement.

**Business Administration, Finance, B.S.,
Specialization in Wealth Management**

By focusing on managing current and future figures of a business or organization, finance professionals are often responsible for predicting and analyzing the potential for profit and growth, assessing resources, utilizing statistics and reports. Finance can be a good choice for people who are inquisitive, ambitious problem solvers. A bachelor's degree in finance is a great starting point for careers in financial services, across business, banking and consultancy sectors.

Increase your scope of knowledge by adding the Wealth Management Specialization to your degree. This specialization focuses on preparing graduates to offer financial services in the growing area of high-net-worth individuals, including capital gains planning, estate planning and risk management.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Finance, B.S., Specialization in Wealth Management

Students seeking the Bachelor of Science degree in Finance, Wealth Management specialization must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)

- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Finance (FIN) required courses

- ACC 3010 - Financial Reporting and Analysis (3) *
- ACC 4150 - Introduction to Taxation (3)
- FIN 3600 - Investment Analysis (3)
- FIN 3680 - Financial Modeling (3)
- FIN 3720 - Managerial Finance II (3)
- FIN 3990 - ACHIEVE III - Finance (0)
- FIN 4779 - Estate, Retirement, and Education Planning (3)

* In lieu of ACC 3010 (3), students may substitute ((ACC 3100 (3) and ACC 3110 (3)) or (ACC 4001 (3) and ACC 4002 (3))

Complete One Finance (FIN) elective courses

- FIN 4180 - Financial Markets and Institutions (3)

- FIN 4250 - Financial Derivatives (3)
- FIN 4360 - Managing Investment Funds (3)
- FIN 4600 - Investment Portfolio Management (3)
- FIN 4900 - Special Topics in Finance (3)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

If an Actuarial Science student wants to switch to a Finance major, they can use FIN 3550 to satisfy the FIN 3220 requirement, but will still need to take FIN 3720. If a Finance major student wants to switch to an Actuarial Science major, they will need to use both FIN 3220 and FIN 3720 to satisfy the FIN 3550 requirement.

Accounting Minor

A minor in accounting provides students with a background in financial and managerial accounting. The knowledge gained through this minor can be applied to many career paths - those directly related to accounting and finance as well as careers in other settings including corporate, small business and not-for-profit organizations.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Accounting

Required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)

Elective courses

Four additional courses in any 3000- or 4000-level accounting (ACC) courses.

Additional requirements

The minimum grade of C must be earned in each course in the accounting minor and in the prerequisites for each course. This minor is open to all students except accounting majors.

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Finance Minor

A minor in finance broadens the learning experiences and professional opportunities of business students by providing them with knowledge in the basic elements of managerial financial. By enhancing understanding of this critical business function, this minor can enhance any business major.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Finance

Required courses

- FIN 3220 - Managerial Finance I (3) or FIN 3550 - Finance for Actuarial Science (4)

Elective courses

Three courses in 3000 or 4000 level finance (FIN) courses

Either ACC 3010 or ACC 4003 or ACC 4150 may satisfy three credits toward the finance minor.

Additional requirements

A minimum grade of C must be earned in each course in the finance minor and in the prerequisites for each course. This minor is open to all students except finance majors.

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Department of Decision and Information Sciences

Renowned faculty researchers bring innovative business concepts and real-world applications to life in Oakland University's management information systems programs. Collaboration with industry combined with integrating today's business challenges into the curriculum means OU students graduate with the skills and knowledge required to address vital business and technology issues.

The department is home to Oakland University's Center for Data Science and Big Data Analytics, a collaborative, cross-disciplinary research center that merges the expertise of biomedical science, mathematics, engineering, business and finance to develop innovative solutions to high-impact problems.

Business Administration, Management Information Systems, B.S.

Helping organizations harness ever-changing technology and the data it provides to improve business operations and outcomes is the heart of a management information systems (MIS) career. An integrative, cross-disciplinary field, MIS experts are the bridge between business needs and technology. With an emphasis on finding solutions, MIS focuses on applying information technology to business problems.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Management and Information Systems, B.S.

Students seeking the Bachelor of Science degree in Management Information Systems must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)

- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Management Information System required courses

- MIS 3050 - Information Technology Foundations (3)

- MIS 3140 - Business Database Systems (3)
- MIS 3990 - ACHIEVE III - Management Information Systems (0)
- MIS 4050 - Business Systems Analysis and Design (3) or MIS 5150 Systems Analysis and Design (3)
- MIS 4060 - Managing Information Systems Projects (3) or MIS 5160 Software Program and Project Management (3)

Complete three Management Information System elective courses

- MIS 4130 - Networks (3)
- MIS 4140 - Information Security Lab (3)
- MIS 4170 - Practical Cyber Security Fundamentals (3) or MIS 5170 Practical Cyber Security Fundamentals (3)
- MIS 4180 - IS Risk Analysis and Security Controls Development (3) or MIS 5180 IS Risk Analysis and Security Controls Development (3)
- MIS 4200 - Electronic Commerce (3)
- MIS 4220 - Business Object Development (3)
- MIS 4240 - Business Application Architecture (3)
- MIS 4260 - Business Application Technology (3)
- MIS 4410 - Operations Analytics (3)
- MIS 4460 - Business Analytics (3) or MIS 5460 Business Analytics (3)
- MIS 4470 - Practical Computing for Data Analytics (3) or MIS 5470 - Practical Computing for Data Analytics (3)
- MIS 4500 - Web Analytics (3)
- MIS 4560 - Introduction to Data Science (3) or MIS 5560 Introduction to Data Science (3)
- MIS 4600 - Deep Learning and Text Analytics (3)
- MIS 4700 - IS Security (3)
- MIS 4750 - Mobile Security and Secure Application Development (3)
- MIS 4900 - Special Topics in MIS (3)
- MIS 5630 - Networks (3)¹
- MIS 5640 - Network Management (3)¹

Some 5000-level courses can be taken by undergraduate students if they are part of the Combined Bachelor/Masters in Information Technology Management Program. [Click here for further details - BS/MSITM.](#)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Administration, Management Information Systems, B.S., Specialization in Business Analytics

The Business Analytics Specialization focuses on quantitative techniques and information technologies for supporting managerial decision making in business. Analytics includes creative use of large (and not so large) datasets, statistical analysis, data visualization, predictive analytics, simulation, data preparation and cleaning, data warehousing and business intelligence.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Management Information Systems, B.S., Specialization in Business Analytics

Students seeking the Bachelor of Science degree in Management Information Systems, Business Analytics Specialization must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)

- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Management Information System required courses

- MIS 3050 - Information Technology Foundations (3)
- MIS 3140 - Business Database Systems (3)
- MIS 3990 - ACHIEVE III - Management Information Systems (0)
- MIS 4050 - Business Systems Analysis and Design (3) or MIS 5050 Business Systems Analysis and Design (3)
- MIS 4060 - Managing Information Systems Projects (3) or MIS 5060 Software Program and Project Management (3)
- MIS 4460 - Business Analytics (3) or MIS 5460 Business Analytics (3)
- MIS 4560 - Introduction to Data Science (3) or MIS 5560 Introduction to Data Science (3)
- MIS 4470 - Practical Computing for Data Analytics (3) or MIS 5470 Practical Computing for Data Analytics)

*Students are recommended to take both MIS 4560 and MIS 4470. If students take both of these courses, one of them will be counted towards the elective.

Complete one Management Information System elective course

- MIS 4410 - Operations Analytics (3)
- MIS 4500 - Web Analytics (3)
- MIS 4560 - Introduction to Data Science (3) or MIS 5560 - Introduction to Data Science (3)

or

- MIS 4470 - Practical Computing for Data Analytics (3) or MIS 5470 - Practical Computing for Data Science (3)
- MIS 4600 - Deep Learning and Text Analytics (3)
- MIS 4900 - Special Topics in MIS (3) (with Specialization Advisor's approval)
- QMM 4400 - Management Science (3)
- QMM 4520 - Forecasting (3)

Some 5000-level courses can be taken by undergraduate students if they are part of the Combined Bachelor/Masters in Business Analytics Program.

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Administration, Management Information Systems, B.S., Specialization in Information Security Management

The Information Security Management Specialization focuses on protecting organizations' information assets including intellectual property, competitive intelligence, business transaction records, and other strategic, tactical, and operational data. The objective of information security management specialization is to provide complementary knowledge and skills to MIS students to manage the confidentiality, integrity, and availability (CIA) of an organization's information assets.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Management Information Systems, B.S., Specialization in Information Security Management

Students seeking the Bachelor of Science degree in Management Information Systems, Information Security Specialization must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3402 - Communication in Leadership (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4) *
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4) *
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)

- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Management Information System required courses

- MIS 3050 - Information Technology Foundations (3)
- MIS 3140 - Business Database Systems (3)
- MIS 3990 - ACHIEVE III - Management Information Systems (0)
- MIS 4050 - Business Systems Analysis and Design (3) or MIS 5050 Business Systems Analysis and Design (3)
- MIS 4060 - Managing Information Systems Projects (3) or MIS 5060 Managing Information Systems Projects (3)
- MIS 4170 - Practical Cyber Security Fundamentals (3) or MIS 5170 Practical Cyber Security Fundamentals (3)
- MIS 4180 - IS Risk Analysis and Security Controls Development (3) or MIS 5180 IS Risk Analysis and Security Controls Development (3)

Complete one Management Information System elective course

- MIS 4130 - Networks (3)
- MIS 4140 - Information Security Lab (3)
- MIS 4700 - IS Security (3)
- MIS 4750 - Mobile Security and Secure Application Development (3)
- MIS 4900 - Special Topics in MIS (3) (with Specialization Advisor's approval)

Some 5000-level courses can be taken by undergraduate students if they are part of the Combined Bachelor/Masters in Information Technology Management Program. Click to [MSITM, Combined B.S./M.S.](#) for further details.

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Administration, Operations Management, B.S.

Operations management is about getting things done effectively and efficiently in organizations. All organizations have an operations function. Operations managers work in managing manufacturing processes or managing the delivery of a service to a customer. An Operations Management major provides a strong managerial and technical education to students interested in the field including manufacturing planning and control, supply-chain, service, project, process and quality management.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S.

Students seeking the Bachelor of Science degree in Operations Management must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3402 - Communication in Leadership (4) or COM 3403 - Interpersonal Conflict (4)

- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4) *
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4) *
- MIS 1000 - Business Problem Solving with Information Technology (3)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)r
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Operations Management required course

- POM 3990 - ACHIEVE III - Operations Management (0)

Complete Six Operations Management elective courses

- ACC 4003 - Managerial and Cost Accounting II (3)
- POM 4350 - Management of Service Operations (3)
- POM 4400 - Process Management (3)
- POM 4410 - Operations Analytics (3)
- POM 4420 - Supply Chain Management (3)
- POM 4430 - Operations Planning and Control (3)
- POM 4470 - Procurement and Global Sourcing (3)
- POM 4480 - Project Management (3)
- POM 4600 - Lean Kaizen in Organizations (3)
- QMM 4400 - Management Science (3)
- QMM 4520 - Forecasting (3)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Administration, Operations Management, B.S., Specialization in Lean and Quality Management

This specialization focuses on the complementary and interdependent subjects of Lean and Quality Management. This specialization examines strategies pursued in order to attain objectives including productivity enhancement, waste reduction, and quality improvements. The set of courses comprising

this specialization emphasize organizational efforts toward a customer-driven philosophy for organization-wide continuous improvement efforts.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Specialization in Lean and Quality Management

Students seeking the Bachelor of Science degree in Operations Management, Lean and Quality Management Specialization must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) COM 3402 - Communication in Leadership (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4) *
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4) *
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Operations Management required courses

- ACC 4003 - Managerial and Cost Accounting II (3)
- POM 3990 - ACHIEVE III - Operations Management (0)
- POM 4400 - Process Management (3)
- POM 4410 - Operations Analytics (3)
- POM 4430 - Operations Planning and Control (3)
- POM 4600 - Lean Kaizen in Organizations (3)

Complete One Operations Management elective course

- POM 4350 - Management of Service Operations (3)
- POM 4420 - Supply Chain Management (3)
- POM 4480 - Project Management (3)
- POM 4470 - Procurement and Global Sourcing (3)
- QMM 4400 - Management Science (3)
- QMM 4520 - Forecasting (3)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Administration, Operations Management, B.S., Specialization in Project Management

The focus of this specialization centers on the ten knowledge management areas comprising the project management body of knowledge. These ten knowledge management areas include project integration, scope, human resource, time, cost, quality, risk, procurement, communications, and stakeholder management. The set of courses comprising this specialization emphasize the skills and techniques necessary to successfully lead and manage projects.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Specialization in Project Management

Students seeking the Bachelor of Science degree in Operations Management Project Management Specialization must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3402 - Communication in Leadership (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4) *
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4) *
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)

- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Operations Management required courses

- ACC 4180 - Accounting Information Systems: Planning and Analysis (3)
- ORG 4310 - Leadership and Group Performance (4)
- POM 3990 - ACHIEVE III - Operations Management (0)
- POM 4410 - Operations Analytics (3)
- POM 4470 - Procurement and Global Sourcing (3)
- POM 4480 - Project Management (3)

Complete One Operations Management elective course

- POM 4350 - Management of Service Operations (3)
- POM 4400 - Process Management (3)
- POM 4420 - Supply Chain Management (3)
- POM 4430 - Operations Planning and Control (3)
- POM 4600 - Lean Kaizen in Organizations (3)
- QMM 4400 - Management Science (3)
- QMM 4520 - Forecasting (3)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Administration, Operations Management, B.S., Specialization in Supply Chain Management

Most organizations realize that they cannot achieve long-term success if they were to focus on their internal processes only. Thus, an essential feature of SCM is the management of relationships among organizations; which typically have different cultures, goals and strategies. The SCM specialization trains students to manage processes and complex relationships among organizations. Areas covered within this major include planning and design for supply chains (SC), production processes, SC risks, procurement in the traditional and global contexts, distribution in SC and deployment of information technology to facilitate SC operations.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Specialization in Supply Chain Management

Students seeking the Bachelor of Science degree in Operations Management, Supply Chain Management Specialization must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3402 - Communication in Leadership (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)

- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4) *
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4) *
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Operations Management required courses

- POM 3990 - ACHIEVE III - Operations Management (0)
- POM 4410 - Operations Analytics (3)
- POM 4420 - Supply Chain Management (3)
- POM 4430 - Operations Planning and Control (3)
- POM 4470 - Procurement and Global Sourcing (3)
- MKT 4220 - Marketing Logistics and Supply Chain Management (3)

Complete One Operations Management elective course

- POM 4350 - Management of Service Operations (3)
- POM 4400 - Process Management (3)
- POM 4480 - Project Management (3)
- POM 4600 - Lean Kaizen in Organizations (3)
- QMM 4900 - Special Topics in Quantitative Methods (3)
- QMM 4520 - Forecasting (3)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Analytics, Combined B.S./M.S.

The Combined BS/MS Business Analytics Program (BS/MS) is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The BS/MS program students will be able to earn their master's degree by completing no more than 12 credits of graduate courses (MIS 5160, MIS 5460, MIS 5560 and MIS 5470) beyond the undergraduate MIS major requirements.

Students accepted for the BS/MS program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year. BS/MS applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver,

download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.

It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the MIS major as well as get credit towards the BS/MS program. If students take only the 4000-level electives, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a B or above in the double-counted graduate courses, will be reclassified as a graduate student through Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Business Analytics, Combined B.S./M.S. option, students must:

1. Complete MIS 1000, MIS 3000, MIS 3050, MIS 3140, and MIS 4050
2. Have a major GPA of 3.2 or above.
3. Apply for and receive delayed admission in the M.S. program and thereby the substitution of graduate classes MIS 5160, MIS 5460, MIS 5560 and MIS 5470 in place of MIS 4060, MIS 4460, MIS 4560 and MIS 4470.
4. Maintain a minimum 3.2 cumulative GPA to completion of the degree in Management Information Systems, B.S., Specialization in Business Analytics.
5. Students must receive formal delayed admission into the program prior to registering for MIS 5160, MIS 5460, MIS 5560 and MIS 5470.

For more information:

Contact Paul Trumbull at: trumbull@oakland.edu

For the full MS program requirements visit the Master of Science in Business Analytics website

MSITM, Combined B.S./M.S.

The MSITM, Combined B.S./M.S. is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The MSITM, Combined B.S./M.S. program students will be able to earn their master's degree by completing 18 credits (6 courses instead of 10) beyond the undergraduate MIS major requirements.

Students accepted for the MSITM, Combined B.S./M.S. program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the MSITM, Combined B.S./M.S. program and be

offered deferred admission to the graduate program during their junior year. MSITM, Combined B.S./M.S. applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver, download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.

It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the MIS major as well as get credit towards the MSITM program. If students take only the 4000-level electives, those courses cannot be counted for the MSITM degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through Graduate Study.

Please refer to the Graduate Catalog for the recommended Schedule and Course Options for the MSITM, Combined B.S./M.S. program.

Business Analytics Minor

Every day more and more companies are leveraging the benefits of business analytics to improve customer service, enhance operational performance, identify new business markets and drive revenue growth. The industry is flourishing. The World Economic Forum predicts that data scientists and analysts will become the number one emerging role in the world by 2022.

No longer the exclusive domain of IT professionals, the search for business and data analytics skills are appearing in job descriptions in industries such as healthcare, automotive, financial services, marketing, human resources, education and more. Employers agree, finding people who have the requisite blend of quantitative computing and business domain knowledge and skills for business analytics is a challenge.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business Analytics

Required courses

- MIS 4460 - Business Analytics (3)
- MIS 4560 - Introduction to Data Science (3) or MIS 4470 - Practical Computing for Data Analytics (3)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2410 - Statistical Methods for Business II (3) or EGR 2600 - Introduction to Industrial and Systems Engineering (4) or STA 2221 - Introduction to Statistical Methods (4) or STA 2226 - Applied Probability and Statistics (4)

Students are recommended to take both MIS 4560 and MIS 4470. If students take both of these courses, one of them will be counted towards the elective. Students who have taken MIS4470 or MIS5470 and are under a previous catalog can count these as required courses for the BA Minor.

Elective courses - choose two

- ACS 4660 - Financial Economics (3)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- ECN 4050 - Econometrics (3)
- FIN 4250 - Financial Derivatives (3)
- MIS 4410 - Operations Analytics (3) or POM 4410 - Operations Analytics (3)
- MIS 4500 - Web Analytics (3)
- MIS 4560 - Introduction to Data Science (3) or MIS 4470 - Practical Computing for Data Analytics (3)
- MIS 4600 - Deep Learning and Text Analytics (3)
- MIS 4900 - Special Topics in MIS (3) (with Minor Coordinator's approval)
- MTH 2775 - Linear Algebra (4)
- QMM 4400 - Management Science (3)
- QMM 4520 - Forecasting (3)
- STA 4002 - Applied Linear Models I (4)
- STA 4330 - Time Series I (4)

Additional requirements

A minimum grade of C must be earned in each course in the business analytics minor and in the prerequisites for each course.

Certain MIS 4900 or POM 4900 Special Topics courses can count as a minor requirement with prior approval of the minor coordinator based on the topic.

This minor is open to all majors. Non-SBA students should contact the minor coordinator to determine the total number of courses required for the minor.

The minor in business analytics (BA) adds only four courses to the degree requirements for SBA students.

Students cannot obtain both a minor in Business Analytics and a MIS major with a Business Analytics specialization.

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and

the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Information Security Management Minor

Information security management, also called cyber security, ensures the confidentiality, integrity and availability of an organization's information, data and IT services. Information security refers to the processes and methodologies which are designed and implemented to protect print, electronic or any other form of confidential, private and sensitive information from unauthorized access, use, misuse, disclosure, destruction, modification or disruption.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business Administration, Information Security Management

Required courses

- MIS 1000 - Business Problem Solving with Information Technology (3) or CSI 1200 - Introduction to Computing and Programming using Excel (4)
- MIS 3000 - Management Information Systems (3) or MIS 3010 - Survey of Management Information Systems (3)
- MIS 3050 - Information Technology Foundations (3)
- MIS 4170 - Practical Cyber Security Fundamentals (3)
- MIS 4180 - IS Risk Analysis and Security Controls Development (3)

Elective courses - choose one

- MIS 4130 - Networks (3)
- MIS 4140 - Information Security Lab (3)
- MIS 4700 - IS Security (3)
- MIS 4750 - Mobile Security and Secure Application Development (3)

Additional requirements

A minimum grade of C must be earned in each course in the ISM minor and in the prerequisites for each course. This minor is open to all students except MIS majors.

Certain MIS 4900 Special Topics courses can count as a minor requirement with prior approval of the minor coordinator based on the topic. Students cannot obtain both the ISM Minor and Major with ISM Specialization.

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Management Information Systems Minor

A minor in Management Information Systems allows students to enhance their understanding of how information technology applies to their major field of study. Business students gain the skills necessary to expertly leverage information technology and strategically align it with solutions in any business environment. An MIS minor can enhance any major, positioning the graduate for roles in corporate, small business, government and not-for-profit organizations.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Management Information Systems

Required courses

- MIS 1000 - Business Problem Solving with Information Technology (3) or CSI 1200 - Introduction to Computing and Programming using Excel (4)
- MIS 3000 - Management Information Systems (3) or MIS 3010 - Survey of Management Information Systems (3)
- MIS 3050 - Information Technology Foundations (3)
- MIS 3140 - Business Database Systems (3)
- MIS 4050 - Business Systems Analysis and Design (3)

Elective course

- One 4000 level elective course in MIS

Additional requirements

A minimum grade of C must be earned in each course in the MIS minor and in the prerequisites for each course. This minor is open to all students except MIS majors.

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Operations Management Minor

An Operations Management minor offers students the opportunity to enhance their major with knowledge in operational design and control, including forecasting, planning and quality assurance. An Operations Management minor can position graduates for positions in areas such as procurement, logistics, quality assurance, process improvement, inventory and more.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Operations Management

Required courses

- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- POM 3430 - Operations Management (3)

Electives courses - choose three

- POM 4350 - Management of Service Operations (3)
- POM 4400 - Process Management (3)
- POM 4410 - Operations Analytics (3) or MIS 4410 - Operations Analytics (3)
- POM 4420 - Supply Chain Management (3)
- POM 4430 - Operations Planning and Control (3)
- POM 4470 - Procurement and Global Sourcing (3)
- POM 4480 - Project Management (3)
- POM 4600 - Lean Kaizen in Organizations (3)

Additional requirements

A minimum grade of C must be earned in each course in the operations management minor and in the prerequisites for each course. This minor is open to all students except operations management majors.

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Department of Management and Marketing

From organizational and consumer behavior and strategic management, policies and strategies, to international business, and legal and ethical studies, Oakland University students benefit from the vast range of expertise the management and marketing faculty offer.

The Department of Management and Marketing covers three clusters: marketing; organizational behavior/human resource management; and management. Within the management cluster, there are three areas: strategic management/policies and strategies; international business; and legal and ethical studies.

Business Administration, General Management, B.S.

The purpose of the general management major (124 credits) is to enable a student to choose a variety of management courses with the greatest flexibility (keeping in mind that core course requirements are the same for all majors). Substantial numbers of employers are looking for broadly educated students at the Bachelor's degree level, and many students prefer to have a general business education early in their careers.

Special offerings for each semester may be found in the Schedule of Classes.

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Requirements for the major in General Management, B.S.

Students seeking the Bachelor of Science degree in General Management must complete a minimum of 124 credits including the following requirements:

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3402 - Communication in Leadership (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1331 - College Algebra (4) or MTH 1441 - Precalculus (4) *
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4) *
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)

- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

General Management required courses

- MGT 3990 - ACHIEVE III - General Management (0)
- ORG 4310 - Leadership and Group Performance (4)

Complete 11 credits of General Management elective courses

The electives may be chosen from any area within the SBA (courses beginning with ACC, ECN, ENT, FIN, MGT, MIS, MKT, ORG, POM or QMM) and must be chosen from courses numbered 3000 or higher. At least six credits must be at the 4000 level which includes ORG 4310. A grade of C or better must be achieved in each prerequisite for a general management elective course before a general management major may begin work in that general management elective course. No more than four credits of independent study (MGT 4996) may be used to meet the major elective requirement.

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Students may not earn a double major in general management and another major in the School of Business Administration.

Business Administration, Human Resource Management, B.S.

The major in Human Resource Management develops the skills needed to administer the personnel functions of organizations. It is designed primarily for students who intend to pursue careers in administration, personnel management, labor relations or wherever the management of people at work is a central concern. Emphasis is placed on developing an intensive understanding of the concepts and techniques needed to acquire, develop and utilize an organization's human resources. The program includes broad coverage of such topics as personnel psychology, personnel administration and labor/management relations, in addition to providing basic knowledge of organizational behavior.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Human Resource Management, B.S.

Students seeking the Bachelor of Science degree in Human Resource Management must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)

- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Human Resource Management required courses

- ORG 3990 - ACHIEVE III - Human Resource Management (HRME) (0)
- ORG 4300 - Organizational Research Methods (4)
- ORG 4340 - Advanced Human Resources Management (4)
- ORG 4600 - Compensation and Benefits (4)

Human Resource Management elective courses - choose two

- ECN 3380 - Economics of Human Resources (3)
- ORG 4310 - Leadership and Group Performance (4)
- ORG 4320 - Motivation and Work Behavior (4)
- ORG 4330 - Labor/Management Relations (4)

- ORG 4700 - International Organizational Behavior and Human Resources Management (4)
- ORG 4900 - Topics in Organizational Management (1 TO 4)
- MGT 4900 - Seminar: Current Business Topics (1 TO 4)
- PS 3325 - Public Sector Human Resource Management (4)

*At least one elective course must be a 4000 level ORG course

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

In addition to the course requirements listed above, students interested in pursuing the human resource management (HRM) major must also complete the Human Resource Management Experience (HRME) requirement which will satisfy the ORG 3990 requirement. The options for this requirement are described below:

Internship - HRME contract

Students must receive HRM faculty adviser approval prior to beginning the work experience.

For students who would like to substitute their current or recent work experience, the student must complete the contract for the appropriate job and schedule a meeting with the HRM major adviser for approval. Additional support may be required when using previous experience to fulfill this requirement.

The student's work experience must meet the minimum 280 contact hours requirement.

Exit interview

Upon completion of the internship or equivalent experience, the student must submit written answers to the specified exit interview questions to the major adviser.

Students must also have their internship supervisor submit a letter on company letterhead to the HRM major adviser stating the following: hours worked, time period (e.g. months/year), and basic job duties.

Upon documentation of the exit interview, written documentation of the completion of the requirement will be provided to the student and the Undergraduate Advising Office within two weeks.

Portfolio Project

Information concerning this option is available from the HRM Major Adviser.

These items represent new work that represents an HRM skill set. Once the student submits all required aspects of the project to the HRM Major Adviser, written documentation of the completion of the requirement will be provided to the student and the Undergraduate Advising Office within two weeks.

Business Administration, Marketing, B.S.

Marketing involves identifying and satisfying the wants and needs of customers and businesses through exchanges that create value for all parties to the exchange. To do this effectively, marketing develops and maintains customer relationships, and creates a position in the marketplace relative to consumers. The marketing activities involved in bringing products to market include marketing research, product development, pricing, marketing logistics, marketing channel management, wholesaling and retailing, and promotion, including advertising, sales promotion, and personal selling.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in marketing, B.S.

Students seeking the Bachelor of Science degree in Marketing must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3402 - Communication in Leadership (4) or COM 3403 - Interpersonal Conflict (4)

- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Marketing required courses

- MKT 3990 - ACHIEVE III - Marketing (0)
- MKT 4040 - Consumer Behavior (4)

- MKT 4050 - Marketing Research (4)
- MKT 4530 - Strategic Marketing Management (4)

Marketing elective courses - choose three:

- MKT 4060 - Integrated Marketing Communications (3)
- MKT 4100 - Digital Marketing (3)
- MKT 4210 - Distribution Channels Management and Retailing (3)
- MKT 4220 - Marketing Logistics and Supply Chain Management (3)
- MKT 4300 - Professional Selling (3)
- MKT 4500 - International Marketing (3)
- MKT 4550 - Product Management (3)
- MKT 4600 - Entrepreneurial Marketing (3)
- MKT 4700 - Business to Business Marketing (3)
- MKT 4900 - Seminar in Marketing (1 TO 4)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Minor

Powerful programs and a strong student-centered education that merges experiential learning with innovative thinking, technology and hands-on applications mean Oakland business students can take advantage of incomparable opportunities to practice business and leadership skills within and beyond

the classroom. No matter which major is the stepping-stone to your future, you will gain a comprehensive overview in the business foundations and specifics of your chosen field.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business

Required courses

- ACC 2000 - Financial Accounting (4) or ACC 3000 - Survey of Accounting (4)
- ECN 1500 - Economics in Today's World (4) or ECN 1600 - Introduction to the Global Economy (4) or ECN 2000 - Principles of Macroeconomics (4) or ECN 2010 - Principles of Microeconomics (4) or ECN 2020 - Principles of Global Macroeconomics (4)

Elective courses - choose four

- ENT 3010 - Developing New Venture Ideas (3)
- FIN 3000 - Survey of Finance (3)
- MGT 3000 - Survey of Management (3) or ORG 3300 - Introduction to Organizational Behavior (3)
- MGT 3500 - Legal Environment of Business (3)
- MIS 3010 - Survey of Management Information Systems (3) or MIS 3000 - Management Information Systems (3)
- MKT 3000 - Survey of Marketing (3)
- POM 3000 - Survey of Operations Management (3)

Note: Students who have completed MKT 3020 before declaring a Business minor can substitute the course for the MKT 3000 elective course.

Additional requirements

This minor is not open to pre-business students, business undecided students or students holding major standing in the School of Business Administration. ACC 3000, MGT 3000, MIS 3010, MGT 3000, POM 3000, and FIN 3000 cannot be used to fulfill the requirement of any other SBA major or other SBA minor, except for the Entrepreneurship minor or the International Management minor for non-SBA students. In addition, these courses cannot be used to fulfill any of the pre-core course requirements for the Master of Business Administration, Master of Accounting, or Master of Science in Information Technology Management degrees at Oakland University.

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses

for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Entrepreneurship Minor

Through the courses in the entrepreneurship minor, students learn how to start their own business and successfully launch new ideas. Courses are designed so students can complete the minor rapidly while maximizing their knowledge. Oakland's entrepreneurship minor can complement any major, allowing students to pursue their primary passion while gaining valuable and practical knowledge and transferable skills.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Entrepreneurship

Requirements for Business Majors

The minor consists of a minimum of four courses.

Required courses

- ENT 3010 - Developing New Venture Ideas (3)
- ENT 4400 - New Venture Creation (3)

Elective courses - choose two

- ENT 3050 - The Psychology of Creativity and Innovation (4)
- MGT 4540 - Business Entities (3)
- MKT 4550 - Product Management (3)
- MKT 4600 - Entrepreneurial Marketing (3)
- ORG 4310 - Leadership and Group Performance (4)
- ENT 4900 - Seminars in Entrepreneurship (1 TO 4)

Requirements for Non-Business Majors

The minor consists of a minimum of five courses.

Prerequisite courses - choose two

- ACC 2000 - Financial Accounting (4) or ACC 3000 - Survey of Accounting (4)
- FIN 3000 - Survey of Finance (3)

- MGT 3000 - Survey of Management (3)
- MKT 3000 - Survey of Marketing (3)

Required courses

- ENT 3010 - Developing New Venture Ideas (3)
- ENT 4400 - New Venture Creation (3)

Elective courses - choose one

- ENT 3050 - The Psychology of Creativity and Innovation (4)
- ENT 4900 - Seminars in Entrepreneurship (1 TO 4)
- MGT 4540 - Business Entities (3)
- MKT 4550 - Product Management (3)
- MKT 4600 - Entrepreneurial Marketing (3)
- ORG 4310 - Leadership and Group Performance (4)

Additional requirements

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University.

Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Human Resource Management Minor

Human Resource Management is a minor designed to prepare students for careers in business. The minor is tailored with courses to maximize students' abilities to gain knowledge and skills in a concentrated timeframe. Students looking to minor in Human Resource Management can pair this concentration with a variety of other business and non-business majors.

Just like Human Resource Management majors, students who minor in Human Resource Management have access to several different student organizations on OU's campus. Some student organizations are SHRM, the Society for Human Resource Management and Alpha Kappa Psi, the professional business fraternity. These organizations give students the opportunity to become more involved with the student

body, develop leadership skills, open doors for internships and jobs, and cultivate friendships that can last a lifetime.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Human Resource Management

Five courses are required to complete the Human Resource Management minor; these include the following.

Required courses

- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- ORG 4340 - Advanced Human Resources Management (4)

Elective courses - choose two

- ORG 4300 - Organizational Research Methods (4)
- ORG 4310 - Leadership and Group Performance (4)
- ORG 4320 - Motivation and Work Behavior (4)
- ORG 4330 - Labor/Management Relations (4)
- ORG 4600 - Compensation and Benefits (4)
- ORG 4700 - International Organizational Behavior and Human Resources Management (4) or ORG 4900 - Topics in Organizational Management (3 TO 4)

Additional requirements

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

International Management Minor

Students who graduate with an international management minor will have an understanding of the complexities of doing business in a globally integrated marketplace and the impact of political, economic, cultural factors that underlie global decision making. Additionally, students will be able to identify international opportunities, and the factors that impact success of global business endeavors. The minor requires a minimum of four courses for business students, and five courses for students from

all other majors. Students will discover strategies organizations employ when they operate worldwide and learn about the organizational behavior of companies from different parts of the world.

This minor is particularly relevant for students who are interested in working in globally integrated industries like automotive, defense, and technology, and is complimentary for a diverse range of majors, including engineering and computer science, international relations, and most liberal arts majors.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in International Management

Requirements for Business Majors

The International Management Minor has several different tracks that allow business students to pursue their major, while complimenting their knowledge base with a global focus that will broaden their opportunities in any industry.

Required courses

- ECN 3730 - International Trade (3)
- MGT 4230 - International Business (4)
- MGT 4250 - Global Business Strategy (4)

Electives courses - choose one

- ECN 3260 - International Economic Development (3)
- ECN 3740 - Economics of Intl Finance (3)
- FIN 4190 - International Financial Management (3)
- MKT 4500 - International Marketing (3)
- ORG 4700 - International Organizational Behavior and Human Resources Management (4)

Requirements for Non-Business Majors

The International Management minor offers the opportunity for students from all majors to learn the basic concepts of business, in addition to the foundations of doing business in the global marketplace.

Required courses

- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- MGT 3000 - Survey of Management (3)
- MGT 4230 - International Business (4)
- MGT 4250 - Global Business Strategy (4)

Elective courses - choose one

- ACC 2000 - Financial Accounting (4) or ACC 3000 - Survey of Accounting (4)
- FIN 3000 - Survey of Finance (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3000 - Survey of Marketing (3)

Additional requirements

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Marketing Minor

The Marketing minor is tailored with courses to maximize students' abilities to gain knowledge and skills in a concentrated time frame. Students looking to minor in Marketing can pair this concentration with a variety of other business and non-business majors.

The career opportunities for Marketing minors are plentiful and varied. Some examples of employment OU students may find with a Marketing minor include marketing analyst, sales representative, and experiential marketing. Career services can help students narrow their career focus.

Just like Marketing majors, students who minor in Marketing have access to several different student organizations on OU's campus. Some student organizations are AMA, the American Marketing Association and Alpha Kappa Psi, the business fraternity. These organizations give students the opportunity to become more involved with the student body, develop leadership skills, open doors for internships and jobs, and cultivate friendships that can last a lifetime.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Marketing

The minor in marketing consists of a minimum of five courses, including four foundation courses and one elective.

Required courses

- MKT 3020 - Marketing (4)
- MKT 4040 - Consumer Behavior (4)
- MKT 4050 - Marketing Research (4)

- MKT 4530 - Strategic Marketing Management (4)

Elective courses - choose one

- MKT 4060 - Integrated Marketing Communications (3)
- MKT 4100 - Digital Marketing (3)
- MKT 4210 - Distribution Channels Management and Retailing (3)
- MKT 4220 - Marketing Logistics and Supply Chain Management (3)
- MKT 4300 - Professional Selling (3)
- MKT 4500 - International Marketing (3)
- MKT 4550 - Product Management (3)
- MKT 4600 - Entrepreneurial Marketing (3)
- MKT 4700 - Business to Business Marketing (3) or MKT 4900 - Seminar in Marketing (3)

Additional requirements

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Department of Economics

The Department of Economics offers a variety of programs for undergraduate students interested in economics: a Bachelor of Arts with a major in economics, a Bachelor of Science with majors in economics and business economics (see the School of Business Administration portion of this catalog) and a Bachelor of Science with a major in actuarial science that is jointly offered with the Department of Mathematics and Statistics.

Through their scholarly contributions and strong academic record, the work of Oakland's expert economic faculty researchers advances the understanding of complex business issues and provides the highest quality instruction to Oakland University students. Our faculty have published in highly visible journals and have been recognized by the University for their research and teaching excellence. Partnering with the community extends the impact of their work while also bringing real-world research opportunities and business experiences to students. These collaborations enhance the school's rigorous economic curriculum, increase the activities of our economic student organizations, and prepares graduates for the next step in their future.

The department presents the Economics Advisory Board Lecture annually which invites elite economists or business leaders nationally to discuss current and important economic issues with students.

[IMPORTANT: This program is currently inactive or in an inactive hierarchy item. It will not be accessible on the Gateway until it is active or in an active hierarchy item.]

Actuarial Science, B.S., Economics

Students must complete the Oakland University General Education Requirements, [General College of Arts and Sciences Requirements](#), [College of Arts and Sciences College Exploratory Requirement](#), Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

Specific offerings for each semester may be found in the [Schedule of Classes](#).

General Education Requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the [General Education Requirements](#) section of the catalog.

Requirements for the liberal arts major in actuarial science, B.S. program

Because an actuary needs a blend of mathematics, economics, statistics, and finance, this major is offered jointly by the Department of Mathematics and Statistics and the Department of Economics. However, the major in actuarial science differs significantly from the other majors offered by these two departments because it (1) prepares students for jobs in actuarial science as well as provides them with the educational background necessary to pursue an advanced degree in economics, mathematics, statistics, or business administration, (2) integrates two distinctly different disciplines, thereby providing students with a breadth of knowledge that is needed in our fast changing world, and (3) provides students with the analytical and reasoning skills to successfully complete the first two exams in actuarial science offered by the Society of Actuaries.

To earn the Bachelor of Science degree with a major in actuarial science, students must complete a minimum of 124 credits. All required and cognate courses must be completed with a minimum grade of a C.

1. Complete Basic Mathematics Requirements

- [MTH 1554 - Calculus I](#) (4)
- [MTH 1555 - Calculus II](#) (4)
- [MTH 2554 - Multivariable Calculus](#) (4)
- [MTH 2775 - Linear Algebra](#) (4)

2. Complete Probability Requirements

- [ACS 3000 - Foundations of Probability and Calculus](#) (1) (*unless the student has earned a grade of at least B+ in MTH 2554 - Multivariable Calculus (4) or permission of the chief undergraduate adviser*)
- [STA 2226 - Applied Probability and Statistics](#) (4)
- [STA 4227 - Introduction to Mathematical Statistics I](#) (4)

3. Complete Economics Requirements

- [ECN 2010 - Principles of Microeconomics](#) (4)
- [ECN 2020 - Principles of Global Macroeconomics](#) (4) or [ECN 2000 - Principles of Macroeconomics](#) (4)
- [ECN 3020 - Intermediate Macroeconomics](#) (3) or [ECN 3210 - Financial Markets and Economy](#) (3)

- *(Students under a previous catalog who have taken ECN 3210 may use this course as a substitute for ECN 3020)*
- [ECN 3030 - Managerial Economics \(3\)](#) or [ECN 3810 - Mathematical Analysis for Economists \(3\)](#)
(Students under a previous catalog who have taken ECN 3810 may use this course as a substitute for ECN 3030)

4. Complete Statistics Requirement

- [QMM 2410 - Statistical Methods for Business II \(3\)](#) or [STA 4330 - Time Series I \(4\)](#) or [STA 4228 - Introduction to Mathematical Statistics II \(4\)](#)
- *(Students under a previous catalog who have taken ECN 4060 or STA 4228 or STA 4330 may use these courses as a substitute for QMM 2410.)*

5. Complete Accounting and Finance Requirements

- [ACC 2000 - Financial Accounting \(4\)](#)
- [FIN 3550 - Finance for Actuarial Science \(4\)](#) or [\(FIN 3220 - Managerial Finance I \(3\) and FIN 3720 - Managerial Finance II \(3\)\)](#) *(Students under a previous catalog who have taken FIN 3550 may use this course as a substitute for FIN 3220)*

6. Complete Regression Requirement

- [ECN 4050 - Econometrics \(3\)](#) or [STA 4002 - Applied Linear Models I \(4\)](#)

7. Complete Database and Programming Requirements

- [EGR 1400 - Computer Problem Solving in Engineering and Computer Science \(4\)](#)
- [MIS 4460 - Business Analytics \(3\)](#)

8. Complete Additional Mathematics-Statistics Requirement

- [APM 2559 - Introduction to Differential Equations \(4\)](#) or [STA 4225 - Stochastic Processes I \(4\)](#) or [APM 4334 - Applied Numerical Methods: Matrix Methods \(4\)](#)
- *(Students under a previous catalog who have taken APM 2559 may use this course as an elective choice)*

9. Complete Financial Mathematics Requirement

- [ACS 4550 - Financial Mathematics](#) (3)

10. Complete Financial Derivatives Requirement

- [ACS 4660 - Financial Economics](#) (3) or [FIN 4250 - Financial Derivatives](#) (3) (Students under a previous catalog can use ACS 4660 to satisfy the Financial Derivatives requirement)

11. Complete Cognate Courses

- [WRT 3082 - Business Writing](#) (4)
- [COM 2000 - Public Speaking](#) (4) or [COM 2403 - Group Dynamics and Communication](#) (4)

12. Complete ACHIEVE courses

- [SBC 1990 - ACHIEVE I](#) (0) (to be taken during the freshman year or first year as an actuarial science major)
- [SBC 2990 - ACHIEVE II](#) (0) (to be taken during the fall semester of the sophomore year or the second semester as an actuarial science major)
- [ACS 3990 - ACHIEVE III Actuarial Sciences](#) (0) (to be taken during the second semester of the sophomore year or the third semester as an actuarial science major)

13. Earn a minimum grade of C in all courses applied to the major including cognate courses for the major.

Business Administration, Business Actuarial Science, B.S.

With a blend of mathematics, economics, statistics, and finance, an Actuarial Science major positions graduates to become experts in evaluating the likelihood of undesirable events and decreasing their impact. The program prepares students for jobs in the field, as well as provides the educational background to pursue an advanced degree in economics, mathematics, statistics, or business administration.

Actuarial science is a discipline in which complex data sets are used to analyze risk probabilities and their associated costs. Corporations rely on actuarial risk evaluation to frame their strategic management decisions. Actuaries are employed by the insurance industry, corporations, and the

government. To become an actuary, a strong background in statistics, economics, and finance is required.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Business Actuarial Science, B.S.

Students seeking the Bachelor of Science degree in Business Actuarial Science must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)
- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Business Actuarial Science courses

- MTH 1555 - Calculus II (4)
- MTH 2554 - Multivariable Calculus (4)
- MTH 2775 - Linear Algebra (4)
- ACS 3000 - Foundations of Probability and Calculus (1)

(unless the student has earned a grade of at least B+ in MTH 2554 - Multivariable Calculus (4) or permission of the chief undergraduate actuarial adviser)

- STA 4227 - Introduction to Mathematical Statistics I (4)
- ECN 3020 - Intermediate Macroeconomics (3) or ECN 3210 - Financial Markets and Economy (3)
- ECN 3500 - Insurance and Risk Management (3)
- ECN 4050 - Econometrics (3)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- MIS 3140 - Business Database Systems (3)
- MIS 4460 - Business Analytics (3)
- APM 2559 - Introduction to Differential Equations (4) or APM 4334 - Applied Numerical Methods: Matrix Methods (4) or STA 4225 - Stochastic Processes I

- ACS 4550 - Financial Mathematics (3)
- ACS 4660 - Financial Economics (3) or FIN 4250 - Financial Derivatives (3)
- ACS 3990 - ACHIEVE III Actuarial Sciences (0)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

Students must complete least 31 credits must be in courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Certificates of additional majors are permitted in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Business Administration, Business Economics, B.S.

An Economics degree provides students with a wide range of transferable skills to study choices and decisions made by individuals, businesses, and nations. It is a flexible choice for students seeking a rigorous, well-respected, and versatile major without specializing in a narrowly defined area too early. Popular career choices for economics students include: banking, finance, insurance, management, consulting, and government. An education in Economics also provides an excellent preparation for graduate studies in law, medicine, business, public administration, environmental studies, and economics.

The BS in Business Economics exposes students to multiple business areas and is an excellent choice for students looking to acquire analytical skills vital for business environments or considering an MBA program after graduation.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Business Economics, B.S.

Students seeking the Bachelor of Science degree in Business Economics must complete a minimum of 124 credits including the following requirements:

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Business Pre-Core required courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- COM 2000 - Public Speaking (4) or COM 2403 - Group Dynamics and Communication (4) or COM 3401 - Communication in Organizations (4) or COM 3403 - Interpersonal Conflict (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4) or MTH 1331 - College Algebra (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) or STA 2220 - Introduction to Statistical Concepts and Reasoning (4) or STA 2226 - Applied Probability and Statistics (4)
- QMM 2410 - Statistical Methods for Business II (3)
- SBC 1990 - ACHIEVE I (0)
- SBC 2990 - ACHIEVE II (0)

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.

Business Core required courses

- ECN 3030 - Managerial Economics (3)
- FIN 3220 - Managerial Finance I (3)
- MGT 3500 - Legal Environment of Business (3)
- MGT 4350 - Management Strategies and Policies (3)

- MIS 3000 - Management Information Systems (3)
- MKT 3020 - Marketing (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- ORG 3310 - Introduction to the Management of Human Resources (3)
- POM 3430 - Operations Management (3)
- WRT 3082 - Business Writing (4) or ENG 3110 - Advanced Critical Writing (4)

Economics (ECN) required courses

- ECN 3020 - Intermediate Macroeconomics (3)
- ECN 3040 - Consumer and Welfare Economics (3)
- ECN 3990 - ACHIEVE III - Business Economics (0)
- ECN 4050 - Econometrics (3)
- ECN 4180 - Seminar in Economic Policy (3)

Complete three Economics elective courses

- ECN 3060 - Applied Time Series Analysis in Business (3)
- ECN 3070 - Using "BIG" Data for Economic Problems (3)
- ECN 3090 - Introduction to Public Finance (3)
- ECN 3100 - Economics of Energy and the Environment (3)
- ECN 3150 - Economics of Gender and Ethnicity (3)
- ECN 3210 - Financial Markets and Economy (3)
- ECN 3260 - International Economic Development (3)
- ECN 3330 - History of Economic Thought (3)
- ECN 3380 - Economics of Human Resources (3)
- ECN 3500 - Insurance and Risk Management (3)
- ECN 3670 - Economics of Health Care (3)
- ECN 3730 - International Trade (3)
- ECN 3740 - Economics of Intl Finance (3)
- ECN 3780 - Economic Analysis of Law (3)
- ECN 3800 - Topics in Economics (3)

- ECN 3810 - Mathematical Analysis for Economists (3)
- ECN 3850 - Economics of Industries (3)
- ECN 4090 - Urban and Regional Economics (3)
- ECN 4210 - Monetary Economics (3)
- ECN 4560 - Public Finance (3)
- ECN 4900 - Special Topics in Economics (3)

Additional requirements

Students must complete the core program and the requirements of one of the business majors in the SBA with a minimum grade of C in each of the pre-core, core and major courses. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University;

Students must complete at least 31 credits of courses offered by the School of Business Administration, excluding ECN 1500, ECN 2000 or ECN 2020, ECN 2010, ECN 2100 and QMM 2400 and QMM 2410. Of these 31 credits, at least 12 credits must be in the student's major.

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Economics, B.A.

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

General Education Requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog.

Requirements for the liberal arts major in economics, B.A. program

The program leading to a Bachelor of Arts degree in economics includes cognate courses in mathematics, statistics and computers and required economics courses and economics electives, as listed below. Students who have taken ECN 1500 or ECN 1600 before ECN 2010 or ECN 2020 (or ECN 2000) and who subsequently become economics majors, should talk to the department chairperson. The economics major must complete each of the cognate, required and elective courses with a grade of C or better:

Cognate courses

- MIS 1000 - Business Problem Solving with Information Technology (3)
- MTH 0661 - Elementary Algebra (4) (if required by ACT or SAT scores)
- MTH 0662 - Intermediate Algebra (4) (if required by ACT or SAT scores)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- QMM 2400 - Statistical Methods for Business I (3) (or STA 2220 or STA 2226) and QMM 2410 - Statistical Methods for Business II (Students who have taken STA 2220 or STA 2226 under a previous catalog may use these courses to satisfy the QMM 2400 requirement)

Required courses

- ECN 2010 - Principles of Microeconomics (4) and ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 3020 - Intermediate Macroeconomics (3)
- ECN 3030 - Managerial Economics (3)
- ECN 3040 - Consumer and Welfare Economics (3)
- ECN 4180 - Seminar in Economic Policy (3)

Economics major electives

Choose five economics electives at the 3000 level or above. No more than 3 credits of ECN 4996, ECN 3800, or ECN 4900 may be counted as electives. Students taking ECN 1500 or ECN 1600 before ECN 2000, ECN 2010 or ECN 2020, and who subsequently become economics majors, should talk to the department chairperson.

Note: Students must meet any course prerequisites before taking these courses. All cognate, required and major elective courses must be completed with a grade of C or better.

Economics, B.S.

An Economics degree provides students with a wide range of transferable skills to study choices and decisions made by individuals, businesses, and nations. It is a flexible choice for students seeking a rigorous, well-respected, and versatile major without specializing in a narrowly defined area too early. Popular career choices for economics students include: banking, finance, insurance, management, consulting, and government. An education in Economics also provides an excellent preparation for graduate studies in law, medicine, business, public administration, environmental studies, and economics.

This degree provides in-depth knowledge of business methods by offering students a range of business-related courses. It is offered with a great flexibility, as it does not require a set of business core courses. Students seeking the Bachelor of Science degree in Economics must complete a minimum of 124 credits including the following requirements:

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Economics, B.S.

General Education requirements

Meet the university General Education Requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog.

Required Cognate Courses

- ACC 2000 - Financial Accounting (4)
- ACC 2100 - Managerial and Cost Accounting I (4)
- CSI 1200 - Introduction to Computing and Programming using Excel (4) or MIS 1000 - Business Problem Solving with Information Technology (3)
- FIN 3220 - Managerial Finance I (3)
- MTH 1221 - Linear Programming Elementary Functions (4) or MTH 1441 - Precalculus (4)*
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)*

- QMM 2400 - Statistical Methods for Business I (3) or (STA 2220 or STA 2226) and QMM 2410 - Statistical Methods for Business II (3)
- WRT 3082 - Business Writing (4)

* If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 are not required.

* If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 Or MTH 1331 are not required.

Economics required courses:

- ECN 2010 - Principles of Microeconomics (4) and ECN 2000 - Principles of Macroeconomics (4) or ECN 2020 - Principles of Global Macroeconomics (4)
- ECN 3020 - Intermediate Macroeconomics (3)
- ECN 3030 - Managerial Economics (3)
- ECN 3040 - Consumer and Welfare Economics (3)
- ECN 4050 - Econometrics (3)
- ECN 4180 - Seminar in Economic Policy (3)

Complete four Economics elective courses (ECN) at the 3000 level or above

- ECN 4010 cannot count as an elective.
- QMM 4520 can be substituted for an economics elective. No more than three credits in ECN 3800, ECN 4900, or ECN 4996 may be counted as economic electives.

Additional requirements

Students earning an additional major are permitted to do so in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different.

Economics Minor

A minor in economics provides a valuable understanding of key economic concepts and their applications to the modern economy. Students also learn a variety of economic policies and develop a set of analytical skills that are valuable for the marketplace. An economics minor is useful to students in all disciplines. For students who are not majoring in economics, the minor in economics boosts their

academic major and prepares them for successful careers or graduate programs in a variety of disciplines.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Economics

Required courses

- ECN 2010 - Principles of Microeconomics (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)

12 credits in Economics (ECN) courses at the 3000 or 4000 level

ACS 4660 may satisfy three credits toward the Economics minor

Additional requirements

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

Employment Systems and Standards Minor

Employment Systems and Standards provides the practical and theoretical bases of the employee/employer relationship, with and without collective bargaining. This program may be particularly useful to individuals interested in the operational aspects of employment, including the law, collective bargaining, employment philosophy, regulations and practices, and the dynamics of employment-related leadership and participative roles.

Requirements for the minor in employment systems and standards

This minor is open to all students. Those who seek to apply credits toward a degree must contact an academic adviser to design a degree plan and to select appropriate courses; the plan of study is subject to the approval of an academic adviser. This minor requires 23 or 24 credits distributed among the areas of preparation listed below. The student must earn a final course grade of C+ or higher in each of the required courses in order for the class to be counted for the minor.

The courses for the minor in Employment Systems and Standards are as follows (23 or 24 credits):

a. Must complete one of the following

- HRD 3440 - Introduction to Labor and Employment Relations (4)
- HRD 3445 - Introduction to Public Sector Labor and Employment Relations (4)

b. Must complete the following two courses

- HRD 3420 - Work and the Law (4)
- HRD 4440 - Civil Rights and Regulations in Employment (4)

c. Must complete three of the following courses

- EHS 2350 - Occupational Safety and Health Standards (3)
- HRD 3330 - Presentation and Facilitation (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- HRD 4100 - Strategic Planning (4)
- HRD 4410 - The Study of Labor and Work Organizations (4)
- HRD 4420 - Employee Benefits (4)
- HRD 4430 - Collective Bargaining and Dispute Resolution (4)
- HRD 4510 - Negotiation for Personal Success (4)
- WGS 3880 - Women in Modern America (4)

Economics Secondary Teaching Minor

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Economics Secondary Teaching

- ECN 2010 - Principles of Microeconomics (4)
- ECN 2020 - Principles of Global Macroeconomics (4) or ECN 2000 - Principles of Macroeconomics (4)
- ECN 3730 - International Trade (3)
- ECN 3760 - U.S. and World Economic History (3)
- ECN 3210 - Financial Markets and Economy (3)
- MIS 1000 - Business Problem Solving with Information Technology (3)
- SED 4100 - ST: Teaching Secondary in the Minor Methods (4)

Additional requirements

To earn this minor, and to take 3000- and 4000-level business classes, non-business students must meet with the minor coordinator and have an approved minor authorization form detailing the courses and the prerequisites required for the given minor. Once approved for the minor, students must take all the

remaining courses in the minor at Oakland University. Students must complete the prescribed courses for the minor with a grade of C or better in each course and the prerequisites for each course. Transfer students planning to earn a minor must earn at least nine credits toward the minor at Oakland University; at least six of these nine credits must be in courses at the 3000 level or above.

ACHIEVE Program

The School of Business Administration's ACHIEVE program equips students with knowledge, skills, and competencies for personal and professional success, while encouraging and coaching students to thrive and make an impact in their chosen fields.

Woven through a series of three required courses exclusively for OU's undergraduate business students, the ACHIEVE program delivers a blend of professional development workshops, online professional development modules, and authentic engagement with industry volunteers. Students participate in mock interviews and networking experiences, coaching on resumes and personal brand development, and professional practice with communication, professionalism, critical thinking, equity and inclusion, and ethical decision making.

Courses in the ACHIEVE program are a hybrid format, designed to offer flexibility for various student needs. Students select from options for in-person or virtual workshops when registering for ACHIEVE courses (SBC 1990, 2990 and 3990). Students may be required to self-schedule additional activities and assignments as indicated in the syllabus and participation requirements for each course.

List of Required Courses for ACHIEVE Program

Note: Students seeking a second degree are exempt from ACHIEVE I (SBC 1990) and ACHIEVE II (SBC 2990) and ACHIEVE III (Major 3990 + SBC 3990); however, they are encouraged to take these non-credit courses as part of their program.

- SBC 1990 - ACHIEVE I OR SBC 1990H - Freshman Seminar
- SBC 2990 - ACHIEVE II
- MAJOR 3990 (See Below) + SBC 3990 - ACHIEVE III - Business Ethics OR SBC 3990H - Senior Seminar

3990 Courses by Major (+ Required Co-Requisite SBC 3990 - Business Ethics)

Students will be required to complete ACC 3990 or ACS 3990 or ECN 3990 or FIN 3990 or MGT 3990 or MIS 3990 or MKT 3990 or ORG 3990 or POM 3990 as part of their major program. (These courses require major standing and are interchangeable if a change of major occurs).

Accounting

ACC 3990 - ACHIEVE III - Accounting

Economics

ECN 3990 - ACHIEVE III - Business Economics

Finance

FIN 3990 - ACHIEVE III - Finance

Management

MGT 3990 - ACHIEVE III - General Management

Management Information Systems

MIS 3990 - ACHIEVE III - Management Information Systems

Marketing

MKT 3990 - ACHIEVE III - Marketing

Mathematics

ACS 3990 - ACHIEVE III Actuarial Sciences

Organizational Behavior

ORG 3990 - ACHIEVE III - Human Resource Management (HRME)

Production and Operations Management

POM 3990 - ACHIEVE III - Operations Management

Business Honors Direct Admit Program

The SBA offers a Business Honors Direct Admit Program (BHP) for high-achieving high school and transfer students. Students typically begin taking honors classes their first year at Oakland University. The program is cohort-based, offering students a close-knit community inside the business school. Each cohort takes customized classes in special sections open only to them and students engage in a host of unique experiences.

Business Honors Direct Admit students:

- Are immersed in a highly interactive, stimulating program offering rigorous academics;
- Access enhanced student support services;
- Take part in international experiences;
- Build strong leadership skills through experiential learning activities;
- Form a strong network with peers and members of the professional community that will serve them well in their careers.

Criteria for Admission for Freshmen Students

Freshmen

To be considered, incoming freshmen must have:

- High School GPA of 3.7 or greater following junior year
- Submission of application to program
- Placement into [MTH 1221](#) (Linear Programming) and [WRT 1050](#) (Composition I)
- Optional submission of ACT or SAT test scores

Transfer

To be considered, incoming transfer students must:

- Meet the criteria listed above for freshmen, and
- Transfer GPA of 3.7 or greater from transfer institution
- Submission of high school GPA if transferring less than 24 credits.

Requirements for Business Honors Direct Admit Program

The program includes 16 honors courses that fulfill the business pre-core and core requirements for all business majors. BHP students take the following courses which replace their pre-core and core non-honors equivalents:

Course number and title:

- [ACC 2000H - Financial Accounting](#) (4)
- [ACC 2100H - Managerial and Cost Accounting I](#) (4)
- [ECN 2010H - Principles of Microeconomics](#) (4)
- [ECN 2020H - Principles of Global Macroeconomics](#) (4)
- [ECN 3030H - Managerial Economics](#) (3)
- [FIN 3220H - Managerial Finance I](#) (3)
- [MGT 3500H - Legal Environment of Business](#) (3)
- [MGT 4350H - Management Strategies and Policies](#) (3)
- [MIS 1000H - Business Problem Solving with Information Technology](#) (3)
- [MIS 3000H - Management Information Systems](#) (3)
- [POM 3430H - Operations Management](#) (3)
- [MKT 3020H - Marketing](#) (3)
- [ORG 3300H - Introduction to Organizational Behavior](#) (3)
- [ORG 3310H - Introduction to the Management of Human Resources](#) (3)
- [QMM 2400H - Statistical Methods for Business I](#) (3)
- [QMM 2410H - Statistical Methods for Business II](#) (3)

All course descriptions are consistent with the non-honors sections of the same courses

BHP students also take:

- Freshman Seminar - (SBC 1990H) (1) replaces SBC 1990
- Senior Seminar - (SBC 3990H) (1)

SBC 3990H replaces ACC 3990 or ACS 3990 or ECN 3990 or FIN 3990 or MGT 3990 or MIS 3990 or MKT 3990 or POM 3990 as part of the major program, but does not replace ORG 3990.

Each BHP student will complete all of the 18 BHP-designated courses including SBC 1990H and SBC 3990H. If a student receives AP/IB/transfer credit upon entry to OU for a required BHP course or if a scheduling conflict with a required BHP course arises, the BHP leadership team will review said course on a case-by-case basis for approval for substitution. A student may not make a substitution of an honors course without approval of the BHP program - doing so will result in being removed from the BHP. All elements of the program must be completed to earn Business Honors certification on a graduating student's diploma.

Students in the program are required to complete experiential and extracurricular activities associated with the program. The benefits of the BHP include: immersion in a highly interactive and stimulating program; access to enhanced student support services; international experience; opportunity to build strong leadership skills through required experiential learning activities; opportunity to represent Oakland in national and international competitions; and a chance to form a strong network with peers and members of the professional community. Admission to Oakland's Business Honors Direct Admit Program is limited to exceptional students who are chosen on a competitive basis.

Advising

Prospective students must apply by completing a separate application. Students interested in pursuing this program should contact the [Business School Undergraduate Advising office](#), 232 Elliott Hall, Room, (248) 370-3285 for more information.

School of Education and Human Services

The School of Education and Human Services exemplifies excellence in our fields through clinical practice, curricula that is innovative, interdisciplinary and international, community engagement, teaching, and individual and collaborative research. We encourage intellectual curiosity in our students, who become strong, effective, inclusive and ethical leaders in a global society.

Our undergraduate programs include a Bachelor of Science in elementary education, a five-year secondary education program leading to teaching certification for selected majors, and a Bachelor of Science in human resource development. Minors in human resource development, lean leadership, training and development, applied leadership skills and employment systems and standards are also available.

The School of Education and Human Services also offers numerous programs at the graduate and doctoral levels; for information on these programs see the OU Graduate School.

Department of Counseling

The Department of Counseling offers undergraduate courses in career exploration, crisis intervention and foundations of counseling. See the Graduate Catalog for the Master of Arts in Counseling, and the Ph.D. in Counselor Education.

Department of Human Development and Child Studies

The Department of Human Development and Child Studies offers courses in early childhood, special education, and applied behavioral analysis. These disciplines have courses at the undergraduate level, which prepare students for careers in education and clinical settings. The department houses master's degree programs in early childhood education and special education; these graduate programs provide endorsements and/or professional education certification requirements. The department also offers a doctor of philosophy degree in early childhood education.

Future Educator Articulation Credit

Future educator articulation provides high school students with an opportunity to earn college credit for work completed in their Michigan Department of Education CTE future educator program in high school. In order to apply for future educator credit, (EED 1000 Careers in Teaching and Education- 1 credit) students must be enrolled in the elementary education or early childhood education program at Oakland University, complete the application for articulation credit, and submit a copy of their Future Educator completion certificate from high school. Application and details are available at the Teacher Education website.

Early Childhood Education, B.S. (Pending Board Approval)

Oakland University's Early Childhood Education, B.S. (can lead to a Michigan Department of Education teaching certificate in Birth - Kindergarten/Pre-K - Grade Three). This program qualifies you to teach in a variety of early childhood settings including but not limited to Birth - Grade Three in school settings, community based early childhood programs, and early intervention and early childhood special education programs. This degree provides coaching and mentoring experiences with local schools and community agencies. The focus is on whole child development including cognitive, socio, emotional, language and physical domains. Emphasis is given to the role of play, diversity & inclusion, and the role of family and culture in supporting young children. During this program, you will develop outstanding teaching skills, learn to address the needs of children and their families, use authentic assessment to

evaluate children's work, and learn developmentally appropriate pedagogical approaches while interacting with young children.

Admission to the Early Childhood Education, B.S.

Admission to major standing is required before beginning the professional sequence. Students using this catalog to meet major requirements may also use any course subsequently approved as satisfying requirements and published in a later catalog.

Students who wish to pursue a B.S. degree in Early Childhood Education are admitted with pre-early childhood education status.

Minimum criteria for admission to the Early Childhood Education, B.S. include:

1. A cumulative grade-point average (GPA) of 2.80 or higher at Oakland University
2. Complete EED 2000 with a minimum grade of B
3. Complete or place out of MTH 0662 with a minimum grade of C
4. Complete WRT 1060 with a minimum grade of B
5. Read and sign, acknowledging a duty to uphold the Michigan Code of Educational Ethics
6. Submission of a completed major standing application to the SEHS Advising Office.

Students can apply for major standing once they are registered for EED 2000.

Major standing will be approved pending successful completion of all requirements.

Second-degree students from regionally accredited institutions are exempt from Oakland University's general education requirements. This does not apply to students educated outside the U.S.

After admission, students meet for course selection with Academic Advisers in the SEHS Advising Office

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Early Childhood Education, B.S.

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity. For details, refer to the General Education Requirements section of the catalog.

To earn the Early Childhood Education, B.S. degree, students must:

- Complete a minimum of 120 credits

A minimum of 45 credits must be completed at Oakland University

A minimum of 32 credits must be at the 3000 level or above

- Meet University General Education Requirements
- Earn a minimum grade of C in each general education course
- Earn a minimum grade of B in WRT 1060 Composition II
- Complete the pre-professional and professional education coursework with B or better in each course unless otherwise noted

Pre-professional courses

- EED 1000 - Careers in Teaching (1)
- EED 2000 - Teaching, Learning, and Schools (3)
- EED 2400 - Science for the Elementary Teacher (3)
- EED 2500 - Social Studies for the Elementary Teacher (3)
- MTE 2110 - Mathematics for Elementary Education I (3) (with a minimum grade of C)
- MTE 2111 - Mathematics for Elementary Education II (4) (with a minimum grade of C)
- RDG 2200 - Literature for Children (3)

Professional Education Courses

- EC 3331 - Child Development Birth to Age 8: Typical and Atypical (3)
- EC 3332 - Learning Through Play (3)
- EC 3333 - Infant and Toddler Development and Programs (3)
- EC 3334 - Early Language and Literacy Birth to Age 4: Content and Pedagogy (3)
- EC 3335 - Seminar 1 - Core Teaching Practices (3)
- RDG 3200 - Emergent Literacy (3)
- EC 3337 - Early Intervention (EI) and Early Childhood Special Education (ECSE) (3)
- EC 3338 - Math for Young Children: Content and Pedagogy (3)
- EC 3339 - Building Children's Resilience: From Trauma Informed to Trauma-sensitive Approaches to ECE (3)
- EC 3340 - Seminar 2 - Professionalism and Collaboration (3)
- EC 4441 - Culturally Responsive Education: The Role of Family, Culture & Community (3)
- EC 4442 - Social Studies for Young Children: Content and Pedagogy (3)
- EC 4443 - Science for Young Children: Content and Pedagogy (3)

- EC 4444 - Math: Teaching Pre-Kindergarten to Third Grade (3)
- EC 4445 - Seminar 3: Social-Emotional Learning and Diversity, Equity, and Inclusion (3)
- EC 4446 - Seminar 4: Reflective Practice and Well-Being (3)
- EC 4950 - Internship in BKPK 3 (9)

Program notes

In order to be recommended for a Michigan Teaching Certificate, in addition to the B.S. requirements, candidates must successfully complete their assigned Michigan Tests for Teacher Certification and be in compliance with all legal requirements for Michigan certification. Please visit the Human Development and Child Studies website for details.

Department of Organizational Leadership

The Department of Organizational Leadership offers a degree of Bachelor of Science in Human Resource Development. This field of study focuses on four areas: organizational development, learning and development, career and leadership development, and employment systems and standards. Coursework covers topics related to instructional design and delivery, lean leadership, program evaluation, performance appraisal, employee selection, recruiting, ethics, organizational development, principles of leadership, labor relations, employment law, employee involvement, and cultural diversity. Graduates are prepared with conceptual knowledge as well as technical and interpersonal skills for a variety of careers.

Departmental Honors

HRD honors are available to students who meet the following standards: a 3.50 or better cumulative average for all courses taken at Oakland University; a 3.70 or better cumulative average in department courses.

Related Minors and Concentrations

Students who wish to obtain a minor offered by Department of Organizational Leadership must obtain the approval of a Human Resource Development academic adviser. If the minor or concentration is within a school other than SEHS, students must obtain approval from an adviser of the selected minor. Please note that one course cannot be used to satisfy the requirements of three categories under the Department of Organizational Leadership. This means that one course cannot be used to meet the requirements of an HRD major and two HRD minors or to meet the requirements of all three HRD minors.

Human Resource Development, B.S.

Requirements for the major in Human Resource Development, B.S. program

Students are admitted to the Human Resource Development program with pre-HRD status until they have met the major standing requirements. Admission to pre-HRD status requires a cumulative grade-point average of 2.00 or better. Students using this catalog to meet major or minor requirements may also use any course subsequently approved as satisfying requirements and published in a later catalog.

Admission to Major Standing in Human Resource Development

- To be admitted to major standing a student must satisfy the following requirements:
- Complete a minimum of 40 credits at an accredited college or university with a cumulative GPA of 2.00 or better. Courses that carry no numerical or letter grade (such as S/U) are excluded from calculation of the GPA.
- Complete the HRD core courses with a minimum grade of C+ in each course.
- Submit an "Application for Major Standing" during the semester in which the student expects to complete the core requirements.
- Meet with the HRD Academic Adviser and complete an approved HRD program plan.

Schedule of Classes

To earn a Bachelor of Science degree with a major in human resource development, students must:

1. Complete a minimum total of 120 credits.
2. Complete at least 45 credits at Oakland University.
3. Complete and at least 32 credits in courses at the 3000 level or above.
4. Have a cumulative grade point average of at least 2.00.
5. Complete the university general education requirement (see Undergraduate degree requirements). Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity.
6. Complete the human resource development core (32 credits), human resource development focus area courses (32 credits), internship or approved alternative (4 credits), and general electives (12 credits). Students must obtain a minimum grade of C+ in each required HRD course.

Required courses for the Bachelor of Science degree in Human Resource Development

The program leading to the Bachelor of Science degree in human resource development includes the following HRD courses, electives and internship.

A. HRD Core Courses -- 32 credits

Core courses introduce important theoretical constructs and skills for pursuing a major in human resource development. Students must earn a minimum grade of C+ in each of the following core courses:

- HRD 3100 - Introduction to Human Resource Development (4)
- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3300 - Instructional Design (4)
- HRD 3410 - Ethics in Human Resource Development (4)
- HRD 3420 - Work and the Law (4)
- HRD 3430 - Staffing, Performance Evaluation and Interaction within Organizations (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- HRD 3700 - Human Resource Information Systems (4)

B. HRD Focus Area Courses -- 32 credits

HRD focus area courses should be taken after students finish the HRD core courses. HRD focus area courses must be completed with a minimum grade of C+. There are four HRD focus areas: Organizational Development, Training and Development, Career/Leadership Development and Employment Systems and Standards. The student is required to take the asterisked (*) course in each of the four HRD focus areas plus one elective course in each of the four HRD focus areas.

Organizational Development

- * HRD 4200 - Change Process and Organizational Analysis (4)
- HRD 3230 - Fundamentals of Human Interaction (4)
- HRD 3600 - Lean Principles and Practices in Organizations (4)
- HRD 4100 - Strategic Planning (4)
- HRD 4600 - Lean Kaizen in Organizations (4)

Training & Development

- * HRD 4300 - Instructional Methods (4)
- HRD 3330 - Presentation and Facilitation (4)
- HRD 4320 - Program Evaluation (4)
- HRD 4700 - E-learning in Organizations (4)

Career/Leadership Development

- * HRD 3520 - Career Development (4)
- HRD 3510 - Principles of Leadership (4)

- HRD 4510 - Negotiation for Personal Success (4)

Employment Systems & Standards

- * HRD 3440 - Introduction to Labor and Employment Relations (4)
- HRD 3445 - Introduction to Public Sector Labor and Employment Relations (4)
- HRD 4410 - The Study of Labor and Work Organizations (4)
- HRD 4430 - Collective Bargaining and Dispute Resolution (4)
- HRD 4420 - Employee Benefits (4)
- HRD 4440 - Civil Rights and Regulations in Employment (4)

C. General Elective Courses -- 12 credits

The general electives allow students to take courses that support their individual interests and career aspirations. General elective courses must be numbered 0500 or higher, and may be from HRD or any other field of interest.

D. Human Resource Development Internship -- 4 credits

Internship requirements may be met by the completion of a professional internship, a research internship, a project internship, or a combination of two or three of these options. Applications for internships must be submitted by the designated deadlines (fall semester - June 15, winter semester - October 15 and summer semester - February 15). Applications will not be accepted after the deadline. The internship must be completed with a minimum grade of C+.

Professional internship (see prerequisites below in HRD 4950 course description)

In order for a student to complete a professional internship, four credits must be completed at an approved internship placement site for a total of 320 hours of work in the field of human resource development. HRD 4950 - Internship in HRD (4)

Research internship

In the rare case that a professional internship cannot be completed, a research internship of four credits may be completed by students who have the requisite backgrounds and skills to produce research work at the undergraduate level in the field of human resource development. To qualify for a research internship, students are required to have successfully completed the courses normally required for an HRD internship plus any additional courses appropriate for the acquisition of skills necessary for completion of the internship project(s).

It is required that a student intending to pursue this internship has previously conferred with an HRD faculty member regarding the availability of an appropriate research project and the willingness of the HRD faculty member to supervise the intern in his or her completion of the research project.

Students wishing to pursue a research internship must complete an application, including describing the proposed research internship. This form must also be signed by the HRD faculty member who has agreed to supervise the student. Completed applications must be submitted no later than the dates

designated above for internship approval. Applications will be reviewed by a committee of the Department of Organizational Leadership.

Project internship

A project internship of four credits may be completed by students who have completed a minimum of two (2) years of work in the field of Human Resources or who are subject to special circumstances. To qualify for a project internship, students are required to have successfully completed the courses normally required for an HRD internship plus any additional courses appropriate for the acquisition of skills necessary for completion of the internship project(s).

It is required that a student intending to pursue a project internship has previously conferred with an HRD faculty member regarding the availability of an appropriate project or projects to complete as part of the internship and the willingness of the HRD faculty member to supervise the intern.

Applications must be obtained from the HRD Internship Coordinator. Completed applications must be submitted no later than the dates designated above for the internship approval. Applications will be reviewed by a committee of the Department of Organizational Leadership.

Applied Leadership Skills Minor

Requirements for the minor in applied leadership skills

The minor in Applied Leadership Skills provides an academic background emphasizing education in leadership, group dynamics and interpersonal processes, ethics, diversity leadership, and leadership in organizations from a cross-disciplinary approach. This minor is intended for students who wish to develop knowledge of leadership and to develop practical leadership abilities. This minor may be useful to students interested in expanding their leadership capabilities within their communities, businesses, or other organizations.

No more than eight credits of course work used to satisfy another major, minor, or concentration may be applied toward this minor. Students must meet with an academic adviser to design a plan and complete a Minor Authorization Form identifying appropriately selected courses. The minor requires a minimum of 23 credits distributed among the areas described below. The student must earn a final course grade of C+ or higher in a course in order for the class to be counted for the minor.

a. Core Leadership Principles -- Must complete one of the following courses

- COM 3402 - Communication in Leadership (4)
- HRD 3510 - Principles of Leadership (4)

b. Group Dynamics/Interpersonal Processes in Leadership -- Must complete two of the following courses

- COM 2403 - Group Dynamics and Communication (4)
- COM 3000 - Relational Communication Theory (4)

- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3230 - Fundamentals of Human Interaction (4)
- ORG 4310 - Leadership and Group Performance (4)

c. Ethics in Leadership -- Must complete one of the following courses

- PHL 3510 - Ethics in Business (4)
- PS 3710 - International Politics of Human Rights (4)
- HRD 3410 - Ethics in Human Resource Development (4)

d. Diversity Leadership -- Must complete one of the following courses

- PS 3550 - Politics of Development (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- COM 3300 - Communication, Culture, and Belonging (4)

e. Leadership in Organizations -- Must complete one of the following courses

- HRD 3440 - Introduction to Labor and Employment Relations (4)
- HRD 4200 - Change Process and Organizational Analysis (4)
- MGT 3000 - Survey of Management (3)
- ORG 3300 - Introduction to Organizational Behavior (3)
- PS 3205 - American Political Culture (4)

Additional Information

Students should plan their coursework in a way that allows them to meet any of the prerequisites for the above courses. In particular, students are urged to take the following general education courses: PHL 1300, PS 1600 or PS 1100, and any foreign language. Study abroad opportunity through International Education may serve as a substitution for one or more of the course requirements, as determined by the HRD faculty (See Director of International Education for opportunities).

Employment Systems and Standards Minor

Employment Systems and Standards provides the practical and theoretical bases of the employee/employer relationship, with and without collective bargaining. This program may be particularly useful to individuals interested in the operational aspects of employment, including the law, collective bargaining, employment philosophy, regulations and practices, and the dynamics of employment-related leadership and participative roles.

Requirements for the minor in employment systems and standards

This minor is open to all students. Those who seek to apply credits toward a degree must contact an academic adviser to design a degree plan and to select appropriate courses; the plan of study is subject to the approval of an academic adviser. This minor requires 23 or 24 credits distributed among the areas of preparation listed below. The student must earn a final course grade of C+ or higher in each of the required courses in order for the class to be counted for the minor.

The courses for the minor in Employment Systems and Standards are as follows (23 or 24 credits):

a. Must complete one of the following

- HRD 3440 - Introduction to Labor and Employment Relations (4)
- HRD 3445 - Introduction to Public Sector Labor and Employment Relations (4)

b. Must complete the following two courses

- HRD 3420 - Work and the Law (4)
- HRD 4440 - Civil Rights and Regulations in Employment (4)

c. Must complete three of the following courses

- EHS 2350 - Occupational Safety and Health Standards (3)
- HRD 3330 - Presentation and Facilitation (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- HRD 4100 - Strategic Planning (4)
- HRD 4410 - The Study of Labor and Work Organizations (4)
- HRD 4420 - Employee Benefits (4)
- HRD 4430 - Collective Bargaining and Dispute Resolution (4)
- HRD 4510 - Negotiation for Personal Success (4)
- WGS 3880 - Women in Modern America (4)

Human Resource Development Minor

The minor in Human Resource Development is offered for students outside of the HRD major. The minor provides an overview of the field and an introduction to organization development, learning and development, career and leadership development, and employment systems and standards. The minor helps prepare graduates with conceptual knowledge, and technical and interpersonal skills for a variety of careers in HR and other fields.

To obtain a minor in HRD a student must:

- Complete the minor authorization form with the approval of an academic adviser.
- Complete the minor core courses (24 credit hours) with a minimum grade of C+ in each course.

Minor core -- 24 credits

- HRD 3100 - Introduction to Human Resource Development (4)
- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3300 - Instructional Design (4)
- HRD 3420 - Work and the Law (4)
- HRD 3430 - Staffing, Performance Evaluation and Interaction within Organizations (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)

Lean Leadership Minor

Lean leadership is a specialized minor for students who want to enhance their career opportunities through lean knowledge, practice and leadership in the workplace. Students may use the minor to receive a Lean Green Belt Certificate.

Requirements for minor in Lean Leadership

All students interested in pursuing the minor must meet with an academic adviser in HRD. The minor requires 22 credits. The student must earn a final course grade of C+ or higher in each of the required courses in order for the class to be counted for the minor.

- HRD 3210 - Group/Team Development and Leadership (4)
- HRD 3510 - Principles of Leadership (4)
- HRD 3600 - Lean Principles and Practices in Organizations (4)
- HRD 4200 - Change Process and Organizational Analysis (4)
- HRD 4600 - Lean Kaizen in Organizations (4)
- HRD 4610 - Lean Green Belt Certificate (2)

Training and Development Minor

The minor in Training and Development provides students with academic and practical knowledge, skills, and classroom experience specifically in the areas of training and development, adult education, and instructional design. This program may be particularly useful to those with a general interest in designing, developing and delivering training and other presentations in their respective fields.

Requirements - Minor in Training and Development

This minor is open to all students. Those who seek to apply credits toward a degree must contact an academic adviser to design a degree plan and to select appropriate courses; the plan of study is subject to the approval of an academic adviser. The minor requires 24 credits. The student must earn a final course grade of C+ or higher in each of the required courses in order for the class to be counted for the minor.

Courses

- HRD 3100 - Introduction to Human Resource Development (4)
- HRD 3300 - Instructional Design (4)
- HRD 3330 - Presentation and Facilitation (4)
- HRD 4300 - Instructional Methods (4)
- HRD 4320 - Program Evaluation (4)
- HRD 4700 - E-learning in Organizations (4)

Department of Teacher Development and Educational Studies

The Department of Teacher Development and Educational Studies offers programs designed to prepare students for careers in either elementary or secondary school teaching. Both programs are approved by the Council for the Accreditation of Education Preparation (CAEP) and the Michigan Department of Education.

Students who successfully complete the Elementary Education program (offered in conjunction with the Departments of Human Development and Child Studies and Reading and Language Arts) earn a Bachelor of Science degree from Oakland University and recommendation for a Michigan teaching certificate with PK-3 and 3-6 endorsements (see: Michigan Teacher Certification).

The Department also offers the Oakland University Secondary Teacher Education Program (OU STEP) that prepares students majoring in selected academic fields in the College of Arts and Sciences for recommendation for a Michigan standard certificate. Students interested in secondary education programs should consult the College of Arts and Sciences section of the catalog.

Professional Program

Students must follow the required sequence of courses provided at the time of admission to major standing. See course offerings for prerequisites and corequisites. All General Education and Professional Education courses must be completed prior to student teaching.

Future Educator Articulation Credit

Future educator articulation provides high school students with an opportunity to earn college credit for work completed in their Michigan Department of Education CTE future educator program in high school. In order to apply for future educator credit, (EED 1000 Careers in Teaching and Education-1 credit) students must be enrolled in the elementary education program at Oakland University, complete the application for articulation credit, and submit a copy of their Future Educator completion certificate from high school. Application and details are available at oakland.edu/teach.

Retention in the SEHS Professional Education Programs

Retention in the SEHS professional education programs is based on the expectation that students will demonstrate the characteristics of and conduct themselves as aspiring members of the teaching profession. Students may be removed from a program, removed from a field placement, or may not be recommended for certification for one or more of the following conditions: (i) failure to fulfill any such expectations to Oakland University's satisfaction, including, without limitation, the expectation that they demonstrate adequate and appropriate communication ability and character, and develop, maintain and fulfill their professional relationships, responsibilities and competencies; (ii) academic misconduct; (iii) violations of the Michigan Code of Ethics for Teachers; (iv) failure to fulfill any of Oakland University academic or conduct requirements; or (v) violations of any other program or Oakland University policies, rules, regulations or ordinances.

Students may also be removed from field placements for one or more of the following conditions: (i) upon request of a building administrator; (ii) for a failure to comply with the requirements of this Retention Statement; (iii) if Oakland University determines that removal is in the best interests of the student, Oakland University, the professional education programs, or the schools where the student is placed; (iv) inadequate planning, classroom management, and/or discipline; (v) lack of content knowledge; (vi) deficiency in oral or written communication skills; (vii) inappropriate personal or professional behavior; (viii) ethical impropriety; (ix) violation(s) of community standards or policies; or (x) failure to exercise appropriate, professional judgments.

Field placements: In addition to the Internship, field placements are required in all Reading and Seminar classes. The Office of School and Field Services arranges placements, including placement in culturally and economically diverse school districts. Depending on school district requirements, students may be required to be fingerprinted and have a state police and FBI background check, at their expense, before beginning a field placement.

Internship

EED 4950 must be taken in the final semester of the degree program.

Application for the internship, EED 4950, must be made one full academic year in advance of the intended enrollment. Students must check the School and Field Services website for the date of the required seminar meeting (held in the fall semester for both fall and winter student teacher applicants). Admission criteria for the internship are: a) satisfactory grade-point average and minimum required grades; b) completion of all professional education coursework and field placements; and c) students placed in PK-3 and 3-6 classrooms must have passed the MTTC (Michigan Test for Teacher Certification) Elementary Education exam or equivalent. Students will be required to be fingerprinted and have a state police and FBI background check at their own expense.

A minimum grade of C in EED 4950 is required for graduation and a minimum grade of B for recommendation for certification. Students who do not earn the minimum grade for certification can earn a B.S. in Elementary Education without certification with an approved petition of exception.

Michigan Teacher Certification

To be recommended for a Michigan Teaching Certificate at the PK-3 and 3-6 grade bands Elementary Education majors must successfully complete requirements for the B.S. in Elementary Education degree, earn a minimum grade of a B in EED 4950, and successfully pass the required elementary education MTTC exam. The State also requires a current certificate in a Michigan Department of Education approved first aid and adult/child CPR training before certification may be recommended. Successful completion of our program and internship does not guarantee certification by the State of Michigan. See more information about teacher certification at: SEHS Advising.

Elementary Education, B.S.

Students who wish to pursue an elementary education major are admitted with pre-elementary education status. Students who hold a baccalaureate degree in another discipline seeking a second undergraduate degree must meet the undergraduate degree program requirements, excluding General Education Requirements. After admission, students meet for course selection with Academic Advisers in the SEHS Advising Office.

Admission to the major

Admission to major standing in Elementary Education is required before taking professional education courses. Elementary education students plan their course work with an adviser in the SEHS Advising Office.

The program seeks students who are committed to teaching in diverse schools or districts. Meeting the minimum course requirements does not guarantee admission to the major. Qualitative criteria may be required as well. Underrepresented students are especially encouraged to apply. Minimum criteria for admission to the elementary education major are:

1. A cumulative grade-point average (GPA) of 2.80 or higher at Oakland University
2. Complete EED 2000 with a minimum grade of B
3. Complete or place out of MTH 0662 with a minimum grade of C
4. Complete WRT 1060 with a minimum grade of B
5. Read and sign, acknowledging a duty to uphold the Michigan Code of Educational Ethics
6. Submission of a completed major standing application to the SEHS Advising Office.

Students can apply for major standing during the semester they are taking EED 2000.

Major standing will be approved pending successful completion of all requirements.

Schedule of Classes

Requirements for the major in elementary education, B.S.

Admission to major standing is required before beginning the professional sequence. Students using this catalog to meet major requirements may also use any course subsequently approved as satisfying requirements and published in a later catalog.

General Education courses

General Education requirements: In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity. For details, refer to the General Education section of the catalog.

In order to satisfy both general education and other program requirements, students are recommended, but not required, to select from the General Education designated courses listed below:

Foundation:

- WRT 1060 - Composition II

Formal Reasoning:

- MTE 2111- Mathematics for Elementary Education II

Exploration:

- Arts - THA 1000- Introduction to Theatre
- Language and Culture - LIN 1101- The Humanity of Language
- Global Perspective - GEO 2000 Global Human Systems
- Literature - choose any approved course
- Natural Science and Technology - BIO 1002 Human Biology or PHY 1060 Earth Science
- Social Science- PS 1100 - Introduction to American Politics
- Western Civilization - HST 1100- Introduction to American History Before 1877 or HST 1200 Introduction to American History Since 1877

Integration:

- Knowledge Application - JRN 2000 Introduction to Journalism and News Writing, WRT 3062 Writing Center Studies and Tutoring Practice, WRT 3064 Writing About Culture: Ethnography, or WRT 3086 Workshop in Creative Non-Fiction (these classes also satisfy the Writing Intensive in General Education requirement)

- Writing Intensive in Major and U.S. Diversity General Education requirements are met with EED 3100

To earn the BS degree, students must:

- Complete a minimum of 120 credits

A minimum of 45 credits must be completed at Oakland University

A minimum of 32 credits must be at the 3000 level or above

- Meet University General Education Requirements

Earn a minimum grade of C in each general education course

Earn a minimum grade of B in WRT 1060 Composition II

- Complete the pre-professional and professional education coursework with B or better in each course unless otherwise noted

Pre-professional courses

- EED 1000 - Careers in Teaching (1)
- EED 2000 - Teaching, Learning, and Schools (3)
- EED 2400 - Science for the Elementary Teacher (3)
- EED 2500 - Social Studies for the Elementary Teacher (3)
- MTE 2110 - Mathematics for Elementary Education I (3) (with a minimum grade of C)
- MTE 2111 - Mathematics for Elementary Education II (4) (Formal Reasoning) (with a minimum grade of C)
- RDG 2200 - Literature for Children (3)

Professional education courses

- EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion (3)
- EED 3150 - How People Learn (3)
- EED 3300 - Teaching Mathematics 1 (3)
- EED 3350 - Teaching Mathematics 2 (3)
- EED 3450 - Teaching Science 1 (3)
- EED 3500 - Teaching Social Studies 1 (3)
- EED 3600 - Seminar 1 - The Productive Classroom (3)
- EED 3650 - Seminar 2 - Teaching Diverse Students (3)
- EED 4300 - Teaching Mathematics 3 (3)

- EED 4400 - Teaching Science 2 (3)
- EED 4500 - Teaching Social Studies 2 (3)
- EED 4600 - Seminar 3 - Reflecting on my Practice (3)
- EED 4650 - Seminar 4 - Putting it all Together (3)
- EED 4950 - Internship in Elementary Education (9 to 12)
- RDG 3200 - Emergent Literacy (3)
- RDG 3250 - Beginning Literacy (3)
- RDG 4200 - Almost Fluent and Fluent Literacy (3)

Program notes

In order to be recommended for a Michigan Teaching Certificate, in addition to the B.S. requirements, candidates must successfully complete their assigned Michigan Tests for Teacher Certification and be in compliance with all legal requirements for Michigan certification. Link to: Department of Teacher Development and Educational Studies for more details.

Field Placements

Field placements are required in all reading, seminar, and some pre-professional classes. Field assignments connected to mathematics, science, and social studies are required in each of the methods courses. The Office of School and Field Services arranges placements, including placement in culturally and economically diverse school districts. Depending on school district requirements, students may be required to be fingerprinted and have a state police and FBI background check, at their expense, before beginning a field placement.

Secondary Education, OU STEP

Program description

The School of Education and Human Services (SEHS) and the College of Arts and Sciences (CAS) offer a fifth-year secondary teacher education program (OU STEP) leading to recommendation for Michigan secondary standard teacher certification. After completing the requirements for graduation in their major and minor teaching areas and preliminary professional education course work, students engage in an academic year-long internship in the public schools that includes both courses and field experiences, and fulfills requirements for Michigan teacher certification. This certification is valid for teaching content areas in grades 6-12 for English, mathematics, biology, physics, chemistry, integrated science, history, and social studies.

Admission to the major

Admission to the Secondary Teacher Education Program is required before taking professional education courses. Students plan their education course work with an adviser in the SEHS Advising Office. Students

using this catalog to meet major requirements may also use any course subsequently approved as satisfying requirements and published in a later catalog.

Meeting the minimum requirements does not guarantee admission to the major. Qualitative criteria may be required as well. The program seeks students who are committed to teaching in diverse schools or districts. Underrepresented students are especially encouraged to apply. Minimum criteria for admission to the secondary education program are:

Admission to the Secondary Teacher Education Program is required before taking professional education courses. Factors considered in the applicant selection process include the following:

1. A cumulative grade-point average (GPA) of 2.80 or higher at Oakland University
2. Complete SED 3000 or 3001 with a minimum grade of B
3. Complete WRT 1060 with a minimum grade of B
4. Minimum average GPA of 3.00 in both CAS major and minor.
5. Read and sign the Michigan Code of Educational Ethics on the STEP application acknowledging your duty to uphold the ethical standards of the profession
6. Submit the STEP application to the SEHS Advising Office.

Additional information or an interview may be requested to provide a more complete application profile.

Second undergraduate degree applicants should note that admission to the OU STEP and to the university involve separate processes and should contact the undergraduate admissions office for information about admission to Oakland.

Applications to the OU STEP are considered once per year. The deadline is October 1 of the year preceding the intended internship year. Applications received after that date may be considered pending review by faculty and space in the program. Applications are available on the SEHS website oakland.edu/teach.

Schedule of Classes

Program requirements

Both Oakland undergraduates and students who have completed undergraduate degrees from Oakland or other universities (second undergraduate degree candidates) may become eligible to enter OU STEP. Both groups must fulfill all Oakland requirements for a baccalaureate degree in an approved major (listed above) prior to beginning their internship year. In addition, they must complete a teaching minor in one of the following areas: biology, chemistry, economics, English, English as a second language, history, mathematics, physics, or political science unless they are completing an endorsement in social studies or integrated science. For details on specific major and minor course requirements and social studies and integrated science endorsements, consult the applicable College of Arts and Sciences departmental listings in this catalog.

The program requires 34-36 credits of professional education coursework. Program coursework includes courses which are taken prior to the start of the internship year, and which may be taken while students are completing their other degree requirements. A minimum overall GPA of 2.80 is required before students can begin the professional sequence.

Courses to be taken prior to application to the Secondary Teacher Education Program

SED 3000 - Introduction to Secondary Education (4) or SED 3001 - Public Education for Prospective K-12 Teachers (2)

(includes a 30-hour field assignment in the major in addition to course time.)

SED 3000 may only be retaken once. A minimum grade of a B is required for STEP application. Must be completed no less than one semester before application to STEP.

Pedagogy and field courses to be taken during the STEP Program:

- DLL 4197 Digital Technologies in the Secondary Classroom (4)
- FE 3010 - Educational Psychology for K-12 Educators (4) (includes a required field experience)
- RDG 4238 - Disciplinary Literacies (4) (includes a required field experience)
- SED 4100 - ST: Teaching Secondary in the Minor Methods (4) (includes a required field experience in minor) or SED 4130 Teaching in Your Minor Field: Mathematics (4) (includes a required field experience in minor). Students minoring in ESL are exempt from SED 4100.
- SE 4401 - Introduction to Students with Special Needs (4)
- SED 4200 - ST: Teaching Secondary of the Major Methods (4)
- SED 4951 Internship I: Pre-Student Teaching (4)
- SED 4952 Internship in Secondary Education (8)

Additional professional course requirements for Modern Language majors:

- EED 3001 Managing the Classroom Community for U.S. Diverse Learners
- EED 4240 Foreign Language Teaching Methods in Elementary and Middle School

Professional program

Retention in the program is based on student demonstration of the characteristics, dispositions, skills, and conduct of members of the teaching profession.

Retention in the SEHS professional education programs

Teacher Education students are expected to meet high professional, personal, and ethical standard, as detailed in the dispositions document.

Internship and certification

To progress into the internship year, students admitted to the OU STEP must maintain a minimum GPA of 3.00 in their education coursework and in their major and minor course-work. In addition, no single

education course grade may be below B and no major or minor course below C. All major and minor coursework and all professional coursework (except DLL 4197, SED 4200, SED 4951 and SED 4952) must be satisfactorily completed before the internship year begins. Modern Language coursework applicable here include DLL 4197, EED 4240, SED 4200, SED 4951 and SED 4952.

Students must pass the MTTC subject area test for each content area in which they plan to be certified. Successful completion of both of these tests must be documented prior to the beginning of SED 4952.

In addition, students must receive a minimum grade of a B in SED 4951 and SED 4952 to be eligible for recommendation by Oakland University for Teacher certification. The State also requires a certificate in first aid and adult/child CPR before certification may be recommended. Students may be required to be fingerprinted and have a state police and FBI background check, at their expense, before beginning a field placement depending on school district requirements.

Successful completion of the STEP program and internship does not guarantee certification by the State of Michigan. Applicants should be aware that a conviction for a felony or a misdemeanor may constitute grounds for denial of a teaching certificate by the State of Michigan. (See complete policy on the SEHS School and Field Services web site.)

Department of Reading and Language Arts

The Reading and Language Arts Department offers courses in reading, language arts, digital literacies and learning and children's literature at the undergraduate level for students pursuing a career in teaching. For detailed information and the program requirements, please see the Elementary Education, Bachelor of Science degree program section of the academic catalog.

The department also offers a master's degree program in reading and language arts, post-master's certificate programs in the K-12 reading specialist endorsements, and a doctor of philosophy degree in literacy, culture, and language.

School of Nursing

The SON offers programs of study leading to the Bachelor of Science in Nursing (BSN) degree, Master of Science in Nursing (MSN) degree, Doctor of Nursing Practice (DNP) degree, and Doctor of Philosophy in Nursing (PhD) degree. Graduates of the undergraduate program pre-licensure tracks (Basic-BSN and Accelerated Second-Degree BSN) are eligible to take the NCLEX-RN licensure examination. The following are the BSN tracks available at Oakland University.

School of Nursing Mission

The mission of the OU School of Nursing is to prepare transformational leaders committed to caring and using the best evidence in nursing practice, education and research to optimize the health of the public in a diverse ever-changing global society.

School of Nursing Vision

The faculty and graduates of the OU School of Nursing will be recognized as transformational leaders, caring practitioners and scholars who optimize the health and well-being of a diverse global society.

School of Nursing Admission Mission

The OU SON seeks caring individuals who strive to meet the needs of a globally inclusive community and who will use their education to influence healthcare through practice, leadership, and scholarship.

Admission to the SON Undergraduate Program

All students pursuing admission to the SON undergraduate program must first gain admission to Oakland University. For additional information on admission requirements for specific degree tracks, please see the Basic-BSN, the Accelerated-Second Degree, and the BSN Degree Completion Sequence page link.

Clinical Health Requirements for BSN Students

A student's ability to start and/or remain in the Basic-BSN and ASD tracks is contingent upon successful completion of all of the SON clinical health requirements and their ability to satisfy the SON core performance standards. Newly admitted pre-licensure students who do not submit the required clinical health documentation by the published due date will forfeit their seat and will need to re-apply. Continuing students who do not submit the required clinical health documentation by the published due date will not be allowed to enroll in any clinical nursing courses and the corresponding didactic course(s), and their progression in the nursing curriculum may be delayed. The SON clinical health requirements are available on the SON website and in the Undergraduate Student Handbook. In addition, a criminal background check and a urine drug screen are required to begin the nursing program. A flagged criminal background check and/or drug screen may prevent students from enrolling in the nursing program. Students are responsible for all costs associated with the SON clinical health requirements. Please note that clinical partners may require/request their own security-criminal history checks, urine drug screens, and health documentations in addition to SON clinical health requirements in order to participate in clinical experiences at their site. Students are required to comply with any additional requirements of any clinical or enrichment site(s). Students are encouraged to maintain their own health insurance. Please note that payment for injury or illness that occurs while in the nursing program will be the responsibility of the student.

School of Engineering and Computer Science

Introduction

Mission of the School of Engineering and Computer Science (SECS)

The School of Engineering and Computer Science (SECS) offers instruction leading to the degrees of Bachelor of Science in Engineering with majors in computer, electrical, industrial and systems, and mechanical engineering, and Bachelor of Science with majors in computer science and information technology. In addition, programs leading to the Bachelor of Science degree with majors in bioengineering, engineering chemistry, and engineering physics are offered jointly with the College of Arts and Sciences.

Recognizing that today's engineers must be able to solve complex and multi-disciplinary problems, the SECS undergraduate curriculum blends an interdisciplinary core with specialized study in the elected major for each program. SECS graduates are prepared to enter a wide variety of traditional and emerging engineering, computing and technical fields. They are also prepared to pursue graduate study in a range of disciplines, including engineering, computer science, business, law and medicine.

Accreditation

The undergraduate programs in bioengineering, computer engineering, electrical engineering, industrial and systems engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission (EAC) of ABET. The undergraduate computer science and information technology programs are accredited by the Computing Accreditation Commission (CAC) of ABET.

Admission criteria

A 3.0 high school grade-point average is required for admission into the SECS programs; students admitted to Oakland University who wish to join an SECS program but whose high school GPA is below 3.0, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy to change to their desired major. High school coursework in mathematics, chemistry, physics and other STEM-related disciplines beyond what is required for admission to Oakland University is encouraged, but is not required for admission to SECS programs.

Transfer Policy

Students must have a transfer GPA of 2.8 or greater in order to transfer into the SECS programs from other institutions; transfer students admitted to Oakland University who wish to join an SECS program but whose transfer GPA is below 2.8, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy to change to their desired major. Students planning to transfer into any SECS program are encouraged to discuss and plan coursework with an Oakland University adviser to ensure compatibility with university and major requirements. Students are advised to review the Transfer Student information and the transfer equivalency guides found on Oakland University's website.

Transfer students from non-ABET-accredited foreign institutions must complete a minimum of 20 credits in their major program of study (professional subjects or professional electives) at Oakland University including the capstone design course.

School Honors

The School of Engineering and Computer Science may, at its discretion, confer departmental honors on students who have completed a minimum of 48 credits in their major specific courses including core, required professional subjects/courses, professional/technical electives, capstone course and professional options/tracks/concentrations at Oakland University and demonstrate a high level of scholarly accomplishment by achieving a GPA of 3.5 or higher in their major specific courses.

Each year the faculty selects graduating seniors to receive four special awards: Exceptional Achievement, Academic Achievement, Professional Development, and Service. In addition to scholarships available to all Oakland University students, the School of Engineering and Computer Science offers additional scholarship opportunities. Information about these opportunities may be found on the SECS website.

Mission

The overall mission of the School of Engineering and Computer Science (SECS) is twofold:

- to provide high-quality undergraduate and graduate programs of instruction in engineering and computer science to prepare graduates for careers in the coming decade

- to advance knowledge through basic and applied research in relevant branches of engineering and computer science, and to provide service to both the engineering profession and public in the State of Michigan

In carrying out its mission, the School will address the needs of the automotive and related industries in southeast Michigan for the:

- education of engineers and computer scientists,
- development of research programs, and
- fulfillment of the demands for professional service.

General Information

Accreditation

The undergraduate programs in computer engineering, electrical engineering, industrial and systems engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission (EAC) of ABET. The undergraduate computer science and information technology programs are accredited by the Computing Accreditation Commission (CAC) of ABET. Note: the bioengineering program, is expected to pursue ABET accreditation.

Undergraduate programs

The School of Engineering and Computer Science (SECS) offers instruction leading to the degrees of Bachelor of Science in Engineering with majors in computer, electrical, industrial and systems, and mechanical engineering, and Bachelor of Science with majors in computer science and information technology. In addition, programs leading to the Bachelor of Science degree with majors in engineering chemistry, engineering physics and bioengineering are offered jointly with the College of Arts and Sciences.

Through its engineering programs, the SECS prepares students for careers in an industrial-based society. Recognizing that today's engineers must be able to solve complex, highly focused problems, as well as those transcending narrow fields of specialization, the SECS blends an interdisciplinary core with specialized study in the elected major for each program.

Oakland University engineering graduates are prepared to enter the traditional fields of government, product design, development, manufacturing, sales, service and systems analysis - as well as specialized areas, such as robotics, transportation, pollution control, energy systems, computer engineering, communications, medical electronics and automotive engineering. They are also prepared to pursue graduate study for careers in research and teaching. A growing number of students find their undergraduate engineering education is excellent preparation for careers in business, law and medicine.

The baccalaureate program in computer science provides a solid foundation for a career in that field. Since both the engineering and computer science programs are offered within the school, computer science majors are exposed to the software as well as the hardware aspects of the profession. Thus, students in the computer science program prepare themselves for careers in the traditional fields of systems programming, data processing and systems analysis, as well as in such interdisciplinary fields as artificial intelligence, robotics, bioinformatics, computer architecture, computer graphics, pattern recognition and scientific computation. The baccalaureate program in information technology is focused on the applied aspects of software technology. The program provides sufficient technical depth and a comprehensive understanding of information technology in the context of problem-solving relevant to both engineering and service industries. The SECS also offers minors in computer science and information technology.

Professional Societies and Student Organizations

The school has a number of professional societies and student organizations such as the Association of Computing Machinery (ACM), Aerial Systems Club (ASC), American Society of Mechanical Engineers (ASME), Engineering in Medicine and Biology Society (EMBS), Engineering Society at Oakland University (ESOU), For Inspiration and Recognition of Science and Technology (FIRST Robotics), Institute of Electrical and Electronics Engineers (IEEE), International Association for Hydrogen Energy (IAHE), Institute of Industrial and Systems Engineers (IISE), Oakland Robotics Association (ORA), SAE (formerly known as Society of Automotive Engineers), Society of Women Engineers (SWE), National Society of Black Engineers (NSBE), National Society of Professional Engineers (NSPE), Theta Tau fraternity and honor societies Eta Kappa Nu and Tau Beta Pi. Students are encouraged to become active members of one or more of these organizations.

Graduate programs

The SECS offers programs leading to the Master of Science degree in computer science, software engineering and information technology, cyber security, electrical and computer engineering, embedded systems, mechatronics systems engineering, industrial and systems engineering, mechanical engineering, and systems engineering. The SECS also offers programs leading to Doctor of Philosophy degrees in computer science and informatics, electrical and computer engineering, mechanical engineering, and systems engineering. The Ph.D. in Systems Engineering program is a school-wide program allowing for a blending of various disciplines. The school also offers a Master of Science degree

in engineering management in cooperation with the School of Business Administration. For more information, see the Oakland University Graduate Catalog.

Centers/Institutes

Center for Robotics Unmanned and Intelligent Systems (CRUIS)

The Center will facilitate opportunities for OU faculty to lead start-up initiatives to work with business and government agencies to transition technical knowledge from academia to industry commercialization opportunities by enabling a research, development, test and evaluation capabilities. CRUIS will seek opportunities to support robotics and unmanned systems challenges in the defense industry that will lead to development of expertise that can be translated to various sectors - security, commercial, social, medical and others that are mainstream to our daily lives.

Fastening and Joining Research Institute (FAJRI)

Fastening and joining significantly affects the safety, quality and reliability of many mechanical and structural systems, machinery and equipment. The FAJRI is the only known academic facility of its kind in the world dedicated solely to the research and development of fastening and joining of materials in industries such as automotive, aerospace and nuclear. The research programs at FAJRI benefit both the commercial and defense sectors of the economy, while improving the safety of the public.

Automotive Tribology Center (ATC)

The Automotive Tribology Center is an academic research unit within the Mechanical Engineering department. It is the only university research center in the United States that is dedicated to automotive tribology research and is uniquely positioned to advance the reliability, mobility and efficiency of automotive components. The ATC is mainly dedicated to performing fundamental and applied research that lowers frictional energy losses. Particular emphasis is placed on engine and transmission tribology. The research results of ATC benefit the US military and different governmental and industrial sectors of the economy.

Clean Energy Research Center (CERC)

Energy affects all aspect of our lives from the economy to recreation to health care. The Clean Energy Research Center explores sustainable ways to meet our future energy needs utilizing unique renewable energy feed sources, from biomass to wind to solar with a focus on overall energy conservation. The CERC has launched an academic effort to teach and train the next generation of students on energy issues, has begun the green campus initiative to demonstrate the benefit of alternative energy technology on campus, and continues to perform research towards developing environmentally friendlier technologies.

Chrysler Learning and Innovation Center for Sheet Metal Forming Technology (CLIC-form)

Chrysler Learning and Innovation Center for Sheet Metal Forming prepares OU students to work in sheet metal stamping manufacturing environment by learning stamping processes and equipment, die design and manufacturing methods, materials for tools and sheet metal components. A unique feature of CLIC-form is its highly selective, industry-hosted academic program in which OU undergraduate and graduate students take classes and conduct stamping related research during the academic year and participate

in industrial projects during the summer interacting with faculty members and industry experts who specialize in sheet metal stamping.

Center for Advanced Manufacturing and Materials (CAMM)

Center of Advanced Manufacturing and Materials (CAMM) is a unique research center in North America specializing in sheet metal stamping and joining with substantial emphasis on tool wear, and mechanics of material fracture in stamping and joining operations, and performance of sheared edges of stamped panels. CAMM includes a fully automated press cell capable of physically simulating interactions of die surface with sheet metal taking into consideration specific lubrication and coating conditions for variety of high volume sheet metal stamping processes. CAMM is developing innovative sheet metal forming and joining processes achieving substantial enhancement of formability of lightweight materials. CAMM also serves as a base for CLIC-Form center.

Hardware in the Loop (HIL)

Hardware-in-the-loop (HIL) simulation is used widely in the development and testing of complex real-time embedded systems, such as automotive engine controllers. The OU HIL Lab is a unique multi-disciplinary academic facility, which was established in 2012 with support from Chrysler LLC, and is located in Dodge Hall. The HIL lab contains five automotive-hardware-in-the-loop simulators that allow testing and development of production and prototype engine and transmission controllers using simulated (software) automobiles. Research projects have included fuel economy strategies, engine thermal modeling, and advanced control techniques for transmission shift control.

Admission

High school preparation

Entering engineering and computer science freshmen should have taken at least four years of high school mathematics, including trigonometry, and should have a strong grasp of English composition. Additional preparation should include coursework in chemistry and physics. Exposure to computer aided design (CAD), machine shop tooling, computer programming and electronics shop devices is useful, but is not required for admission. Entering information technology freshmen should have at least three years of high school mathematics with some preparation in science. A 3.0 grade-point average is required for admission into the SECS programs; students admitted to Oakland University who wish to join an SECS program but whose high school GPA is below 3.0, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy outlined below to change to their desired major.

Transfer policy

The programs offered by the SECS are designed to meet accreditation criteria, as well as to reflect the Oakland University philosophy of education. The programs are more than an assemblage of courses; they are designed to blend theory and experiment, and to integrate fundamental mathematical and scientific backgrounds into advanced analysis and design work.

To ensure the integrity of its programs, the SECS has adopted the following transfer policy: Records of students transferring to Oakland University from other academic institutions are evaluated and transfer credit is granted as appropriate. Students may transfer applicable community college credits at any time during their course of study. However, according to the Oakland University residency requirement, students must earn at least 45 credits at Oakland University. Furthermore, individual SECS programs require that students complete certain courses at Oakland University; see degree requirements section for more information. Students must have a transfer GPA of 2.8 or greater in order to transfer into the SECS programs; transfer students admitted to Oakland University who wish to join an SECS program but whose transfer GPA is below 2.8, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy outlined below to change to their desired major.

Students planning to transfer into any SECS program are encouraged to discuss and plan coursework (including the courses outlined below) with an Oakland University adviser to ensure compatibility with university and major requirements. Community College students who plan to transfer into an SECS program are advised to follow the transfer equivalency guides found on Oakland University's website. Students who plan to transfer into one of the engineering programs are encouraged to complete the following: four semester courses in analytic geometry and calculus, including linear algebra and differential equations; two semester courses in introductory calculus-based college physics; and one or two semester courses in chemistry. Other credits in mathematics, science or engineering will be evaluated with reference to engineering graduation requirements. Technician course credits generally do not apply to these requirements. Students planning to transfer into the computer science program are encouraged to complete one year of coursework in calculus, one course in linear algebra, one course in discrete mathematics if possible, and two semester courses in introductory calculus-based physics. A course in programming in a high-level language is desirable. Students transferring into the information technology program are encouraged to complete a course in calculus, a course in statistics, and a course in a science elective. A course in programming in a high level language is also desirable.

Transfer students from non-ABET-accredited foreign institutions must complete a minimum of 20 credits in their major program of study (professional subjects or professional electives) at Oakland University including the capstone design course. All of the courses presented for transfer from such programs must receive school approval, before the student receives official transfer credit. See Transfer Student information for additional details.

Internal transfer

Oakland University students wishing to change their major into a program in the SECS from other majors, undecided status, or engineering/computer science candidate status must complete the following courses, all math courses must be completed with a C or better.

Computer, electrical or mechanical engineering: MTH 1554

Industrial and systems engineering: MTH 1554, MTH 1555, PHY 1610 and PHY 1620.

Computer Science: MTH 1554

Information Technology: MTH 1554 or MTH 1222

Bioengineering: MTH 1554 and BIO 1200

Engineering Chemistry: MTH 1554, MTH 1555, PHY 1610 and CHM 1440

Engineering physics: MTH 1554, MTH 1555, PHY 1510 and PHY 1100 as well as PHY 1520 and PHY 1110

Students changing their major into a SECS program from non-SECS majors, undecided status, or engineering/computer science candidate status must follow both major and SECS requirements from the catalog in effect at the time of change.

Academic Advising and Plans of Study

All entering SECS freshmen are focused toward acquiring math, science, writing and programming skills. In their first year, they will typically take one or more introductory engineering or computer science courses. All students are encouraged to meet with an academic adviser regularly, preferably each semester, to review progress to degree.

The school's academic advising office oversees specific program requirements. Students who have questions about degree requirements, transfer credit, academic standing, major standing, or petitions should consult an academic adviser in the SECS Undergraduate Advising Office. Although advisers are obligated to help students plan their programs, the responsibility for fulfilling degree requirements remains with students. The SECS Undergraduate Advising Office is located in 255 Engineering Center, (248) 370-2201.

Degree Requirements

General requirements for the baccalaureate degrees

1. Complete at least 128 - 130 total credits (See the corresponding program description for the exact total). At least 32 credits must be in courses at the 3000 level or above.

2. Students must complete at least 45 credits at Oakland University (refer to the transfer policy of the SECS for further clarification). The credits taken at Oakland must include the following:

Computer, Electrical, Industrial and Systems, or Mechanical Engineering: at least 24 credits in engineering core or professional subjects required for the major;

Engineering Chemistry, Engineering Physics, and Bioengineering: at least 16 credits in required engineering courses, and 16 credits in chemistry or physics or biology courses required for the major;

Computer Science: at least 24 credits in computer science courses required for the major;

Information Technology: at least 24 credits in information technology courses required for the major

3. Fulfill the university General Education Requirements (see below and in the Oakland University Undergraduate Degree Requirements section of this catalog).

4. Obtain major standing in the major of the student's choice.

5. Complete the requirements specified for the selected major.

6. Earn a cumulative grade point average of at least 2.0 in courses taken at Oakland University.

7. All students must apply to graduate by submitting an Application for Degree.

General education requirements

The General Education Requirements are comprised of three parts: Foundations, Exploration, and Integration. In addition, the U.S. Diversity and Writing Intensive requirements must also be met. For specific General Education requirements, please refer to the individual SECS program section and to the General Education section of the catalog.

Core Curriculum

All engineering programs in the SECS have a common core program consisting of the following courses:

EGR 1200 - Engineering Graphics and CAD (1)

EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)

EGR 2400 - Introduction to Electrical and Computer Engineering (4)

EGR 2500 - Introduction to Thermal Engineering (4)

EGR 2600 - Introduction to Industrial and Systems Engineering (4)

EGR 2800 - Design and Analysis of Electromechanical Systems (4)

This core program introduces students to the nuances of the interdisciplinary nature of engineering and lays the foundations for the specialized studies in the student's major fields of study. These courses also provide substantial, real world laboratory experiences to students. It is important that students successfully complete these courses in order to achieve major standing (see below). Engineering Sciences, Computer Science, and Information Technology have different core requirements. Please refer to the individual program descriptions for additional details.

Major standing

To enroll in 3000- or 4000- level courses and to become candidates for the baccalaureate degree, students of the SECS must gain major standing in their selected majors. An application for major standing should be submitted during the semester in which students complete all requirements for major standing. Forms may be obtained from the SECS Undergraduate Advising office. For detailed requirements and a sample schedule, please see the catalog for each individual program.

Course load

Students should strike a balance between course load and other commitments. In general, students carrying a full load of 16 credits per semester should not be employed for more than 10 to 20 hours per week. Students who are employed 40 hours per week generally should not carry a course load of more than 4 credits per semester. The university's maximum course load policy is detailed in the Academic Policies and Procedures section (see Course and credit system).

Graduation check

To ensure that students have met all requirements, they must participate in a final program audit during the semester preceding the one in which they expect to graduate. A preliminary Graduation Review form should be submitted to the Academic Adviser in the SECS Undergraduate Advising Office.

Internships

Many employers seek SECS students for internship employment. Therefore, those SECS students who wish to combine relevant work experience with their college education are encouraged to participate in internship programs in association with engineering or computer science related employers.

Participation in job fairs, which are hosted by the Oakland University Career Services, is often helpful for securing internships. To prepare for internship opportunities, SECS students should list their resume and participate in interview skills training through the Career Services. Appointments with Career Services Office can be scheduled through Handshake.

Double Major

To earn two majors in engineering or in engineering and computer science, students must complete all the requirements of both programs. Further, in addition to the credit hours needed for one major, the student must complete a minimum of 12 credit hours in pertinent required professional subjects or professional electives applicable to the second major. Students seeking two degrees should consult the university's requirements (see Additional undergraduate degrees and majors).

Minors and Concentrations

Students who wish to add a minor or concentration or otherwise participate in an interdepartmental program must apply for admission and seek assistance in planning a program. Application may be made to the coordinator of the appropriate program committee or department involved. Students in the School of Engineering and Computer Science might be interested in the following minors or concentrations: Applied mathematics, applied statistics, biology, chemistry, economics, environmental studies, linguistics, and physics. For details, see Other Academic Options in the College of Arts and Sciences portion of the catalog. Other areas of interest might be: accounting, finance, general business, management information systems, production and operations management, and quantitative methods. For details on these, see Minors in the School of Business Administration portion of the catalog. The School of Engineering and Computer Science offers the following minors:

Minor in International Orientation (for SECS students)

Coordinator: Lunjin Lu

In view of the ever-increasing globalization of industry, students in engineering and computer science need to be aware of their international opportunities and also to develop an intellectual background that enhances their ability to respond to professional challenges in the global environment. To obtain a minor in international orientation, engineering/computer science students must complete the following courses with a grade of at least C in each course:

Requirements

ECN 2000 - Principles of Macroeconomics (4) or ECN 2020 - Principles of Global Macroeconomics (4)

Language consistent with the introductory course (8)

One advanced course (4 credits) from PS 3040(4) or ECN 3730(3)
EGR 4910(4), which requires eight weeks of study/work abroad.

Introductory course - 4 credits

IS 2100 - Perspectives on China(4)

IS 2200 - Perspectives on Japan(4)

IS 2300 - Perspectives on Africa(4)

IS 2400 - Perspectives on India(4)

IS 2500 - Perspectives on Latin America(4)

IS 2700 - Perspectives on the Middle East(4)

HST 3400 - Europe since 1914(4)

Note:

Some of the courses listed above also satisfy general education requirements. Students should review the prerequisites for each class as they plan their course work. This minor is open to the students in the School of Engineering and Computer Science.

Additional Minors (not open to computer science, computer engineering or information technology students)

Minor in Computer Science (See description in Department of Computer Science section.)

Minor in Information Technology (See description in Department of Computer Science section.)

Additional Information

Prerequisite courses

In planning their schedules, students should ensure that they satisfy prerequisite and corequisite conditions for courses, as listed under "Course Offerings." Students will have their registrations canceled if they register for courses for which they do not meet the prerequisite or corequisite conditions. Students will be liable for any financial penalties incurred by such cancellation.

Project and independent study courses

Project and independent study courses numbered 4900 and 4950 are available to provide enrichment opportunities to qualified students. They are not intended as substitutes for regular course offerings; rather, they allow students to investigate areas of interest outside the scope of regular courses, examine subjects more deeply than can be accommodated in regular courses, or gain educational experiences beyond that of regular coursework. To register for a project or independent study course, students must first submit a plan of work to the faculty member who will supervise the course. The plan must be approved in writing by the faculty member and the chair of the major department before students may register for the course.

Application forms are available in the departmental offices.

Petitions

Waivers of specific academic requirements may be initiated by submitting a petition of exception (see Petition of exception under Academic Policies and Procedures). Students seeking a review of their academic standing within the school or students who wish to make a formal complaint should submit a written petition to the chair of their major department or to the SECS associate dean. Petitions will be processed according to established university procedures.

Academic conduct

Students are expected to abide by the principles of truth and honesty, which are essential to fair grading. Academic misconduct in any form is not permitted. Students who are found guilty of academic misconduct as determined by the university Academic Conduct Committee, in any course offered by the school, may be subject to penalties that range from a reduced grade for the assignment, a grade of "F" for the entire course, academic probation, suspension or dismissal from the university. All assignments must be the independent work of each student, unless the professor of the course gives explicit permission relaxing this requirement. See the Academic Conduct Policy section of the catalog for more detailed information.

Academic standing

The performance of students in the School of Engineering and Computer Science will be reviewed at the end of each semester to determine academic progress. Good academic standing in the school requires a cumulative grade-point average of at least 2.0 in: a) courses required for the major; b) cognate courses in mathematics and science; and c) all courses taken at Oakland University. Students whose cumulative grade-point averages fall below 2.0 will be placed on probation status.

Students who fail to correct the conditions leading to probation after one semester are generally ineligible to continue their programs. However, probation status may be continued if students are judged to be making substantial progress toward correcting the deficiency. (For part-time students, 12 consecutive credits of coursework will be considered equivalent to one semester.

Students on probation status may not serve on committees of the School of Engineering and Computer Science. Students who become ineligible to continue enrollment in the School of Engineering and Computer Science may transfer to another school or college within the university subject to their requirements.

The above rules were established by the undergraduate curriculum committee of the School of Engineering and Computer Science. Students wishing to appeal a ruling on their academic status must address a written petition to the School's committee on academic standing. Petitions may be submitted to an SECS academic adviser or to the SECS associate dean.

Unsatisfactory performance

Unsatisfactory (U) grades and grades less than C are considered substandard. School of Engineering and Computer Science students who repeat a course in which a grade below C has been earned must repeat that course at Oakland University to improve the student's Oakland University grade. Courses in which a

grade below C has been earned may not be subsequently passed by competency examination or independent study. Repeated courses transferred from outside Oakland University will be counted towards the total number of allowed repeats. See repeating courses for additional information.

Honors, awards and scholarships

The School of Engineering and Computer Science may, at its discretion, confer departmental honors on students who have completed a minimum of 48 credits in their major specific courses including core, required professional subjects/courses, professional/technical electives, capstone course and professional options/tracks/concentrations at Oakland University at Oakland University and demonstrate a high level of scholarly accomplishment by achieving a GPA of 3.5 or higher in their major specific courses.

Each year the faculty selects graduating seniors to receive four special awards: Exceptional Achievement, Academic Achievement, Professional Development, and Service. In addition to scholarships available to all Oakland University students, the School of Engineering and Computer Science offers additional scholarship opportunities. Information about these opportunities may be found on the SECS website.

Course Offerings

Courses offered through the School of Engineering and Computer Science carry the following designations: computer science and information technology courses, CSI; electrical and computer engineering courses, ECE; industrial and systems engineering courses, ISE; mechanical engineering courses, ME. Courses offered under the general title of engineering are listed under EGR. For some of the courses, the semester(s) in which they are usually offered is indicated at the end of the course description. However, this is subject to change. To register for 3000- and 4000-level courses, students must have attained major standing.

Bioengineering

Bioengineering an interdisciplinary field, grounded on the interaction between biological sciences (as well as other life sciences) and engineering disciplines. The field of bioengineering is capable of realizing many diverse applications to improve human health and develop new technologies aimed at understanding biological phenomenon. Students will learn how to achieve these goals by applying engineering principles to a detailed understanding of biological processes. The major in Bioengineering, offered jointly by the School of Engineering and Computer Science and the College of Arts and Sciences, leads to the Bachelor of Science degree. Students should consult with advisers for the majors to be certain they are on track for all requirements.

Bioengineering, B.S.

In order to earn the degree of Bachelor of Science with a major in Bioengineering, students must complete a minimum of 129 credits including satisfying general education requirements. Bioengineering students must also complete all listed requirements for the following sections: Mathematics & Sciences, Engineering Core, and Required Professional Subjects.

Students will also broaden their knowledge in a specific area of Bioengineering by completing elective courses in the professional tracks requirement.

Students in this program are not required to complete the College of Arts and Sciences exploratory requirements but must complete the General Education Requirements including capstone and writing intensive courses.

Requirements for bioengineering, B.S.

General education - 28 credits

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity and Capstone. For details, refer to the General Education Requirements section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below:

Foundations:

- Writing Foundations (WRT 1060)
- Formal Reasoning (satisfied by MTH 1554; see Mathematics and sciences section)

Explorations: One course from each of the seven Explorations areas:

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (satisfied by EGR 2400 or EGR 2500; see Engineering Core)
- Social Science (satisfied by ECN 1500, ECN 2010, or ECN 2020; see Additional Major Requirements)
- Western Civilization (satisfied by PHL 1310 - Introduction to Ethics in Science and Engineering; see Additional Major Requirements)

Integration:

- Knowledge Applications (satisfied by MTH 1555, see Mathematics and Sciences)

- Capstone (satisfied by BE 4999; see Required professional subjects)

U.S. Diversity:

- May be met by an approved course in the Explorations area

Writing Intensive:

- Writing Intensive in the Major (satisfied by BE 4999; see Required Professional Subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements:

All bioengineering students must meet the following requirements. Courses from these selections can meet general education exploration areas above.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering
- Economics: Choose one from ECN 1500, ECN 2010, or ECN 2020

Mathematics and Sciences

- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- MTH 2554 - Multivariable Calculus (4) or APM 2663 - Discrete Mathematics (4)
- BIO 1200 - Biology I (4)
- BIO 1201 - Biology Laboratory (1)
- BIO 2600 - Human Physiology (4)
- BIO 3621 - Physiology Laboratory (1)
- PHY 1610 - Fundamentals of Physics I (4)
- PHY 1620 - Fundamentals of Physics II (4)
- PHY 3250 - Biological Physics (4)
- CHM 1440 - General Chemistry I (4) and CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- CHM 2340 - Organic Chemistry I (4)

Engineering Core

- EGR 1200 - Engineering Graphics and CAD (1)

- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)

Required Professional Subjects

- BE 3150 - Bioinstrumentation (4)
- BE 3899 - Introduction to Engineering Biology (4)
- BE 4999 - Research Project/Capstone Design (4)

Professional Tracks

Students must complete 16 credits of elective courses from the professional tracks below. Courses can be selected from within one track if the student has a particular area of interest or any combination of courses listed under different tracks. A minimum of 12 credits used toward the professional track requirement must be from courses with engineering-based material.

Track 1: Biomedical Imaging and Signal Processing

- BE 4100 - Biomedical Signal Processing (4)
- BE 4110 - Medical Imaging (4)
- BE 4120 - Medical Image Analysis (4)
- PHY 3260 - Medical Physics (4)

Track 2: Bioinformatics and Genome Engineering

- BE 4200 - Genetic and Genomic Engineering (4)
- BIO 4412 - Functional Genomics and Bioinformatics (4)
- CSI 3450 - Database Design and Implementation (4)
- CSI 4780 - Bioinformatics (4)

Track 3: Molecular Engineering

- BE 4300 - Bioprocess Engineering (4)
- BIO 3500 - General Microbiology (4) *
- BIO 4550 - Microbial Biotechnology (4)
- ME 3500 - Introduction to Fluid and Thermal Energy Transport (4)

* This course does not satisfy the engineering-based material requirement

Track 4: Tissue Engineering

- BE 4400 - Tissue Engineering (4)
- BIO 3142 - Bioengineering Organs and Tissues (4)
- ME 3250 - Mechanics of Materials (4)
- ME 4210 - Analysis and Design of Mechanical Structures (4)
- BE 4900, BE 4996 and BE 4998 may also be selected to meet curriculum requirements. Prior approval is required to take these courses.

No Track Option

- Any 16 credits chosen from the tracks above. A minimum of 12 credits must be engineering-based material

Major Standing

To enroll in 3000 or higher-level courses and to become candidates for the B.S. in Bioengineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000 or higher-level courses. Forms may be obtained from the SECS Undergraduate advising office or from the SECS website. At the time that major standing is approved, students with majors of Pre-Bioengineering will have their major changed to Bioengineering. Approval of both a major standing application and change of major to Bioengineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing and be considered for a degree in Bioengineering, students must:

A) have an average of at least C in the following mathematics and sciences courses: BIO 1200, BIO 1201, MTH 1554, MTH 1555, APM 2555, CHM 1440 and PHY 1610.

B) have an average of at least C in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600 and EGR 2800.

C) have no more than two grades below C in the courses listed in A and B above

D) have not attempted any course listed in A and B above more than three times.

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a GPA of at least 2.0 within each group: mathematics and sciences, engineering core, required professional subjects, and professional tracks and a grade of C or better in the research project/capstone design course (BE 4999). For required professional subjects

and professional track courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three attempts per course are permitted.

Sample Bioengineering schedule

Students may follow a schedule such as the one indicated below

Freshman year

Fall semester - 17 credits

- BIO 1200 - Biology I (4)
- BIO 1201 - Biology Laboratory (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- MTH 1554 - Calculus I (4)
- General Education (4)

Winter semester - 17 credits

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- MTH 1555 - Calculus II (4)
- PHY 1610 - Fundamentals of Physics I (4)
- General Education (4)

Sophomore year

Fall semester - 17 credits

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- CHM 1440 - General Chemistry I (4)
- CHM 1470 - General Chemistry Laboratory I (1)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- General Education (4)

Winter semester - 16 credits

- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)
- MTH 2554 - Multivariable Calculus (4) or APM 2663 - Discrete Mathematics (4)
- General Education (4)

Junior year

Fall semester - 17 credits

- CHM 1450 - General Chemistry II (4)
- CHM 1480 - General Chemistry Laboratory II (1)
- BE 3150 - Bioinstrumentation (4)
- BE 3899 - Introduction to Engineering Biology (4)
- General Education (4)

Winter semester - 17 credits

- BIO 2600 - Human Physiology (4)
- BIO 3621 - Physiology Laboratory (1)
- CHM 2340 - Organic Chemistry I (4)
- PHY 1620 - Fundamentals of Physics II (4)
- General Education (4)

Senior year

Fall semester -16 credits

- Professional track (4)
- Professional track (4)
- Professional track (4)
- General Education (4)

Winter semester - 12 credits

- BE 4999 - Research Project/Capstone Design (4)
- PHY 3250 - Biological Physics (4)
- Professional track (4)

Department of Computer Science and Engineering

The mission of the Department of Computer Science and Engineering is to empower everyone to learn cutting edge computing skills through hands-on and foundational education and research to meet real-

world challenges in Michigan and beyond. To serve that mission, the department is offering separate undergraduate majors in Computer Science, Information Technology and Cybersecurity. The department also offers masters programs in Computer Science, Cybersecurity, Software Engineering and Information Technology, Artificial Intelligence and a Ph.D. program in Computer Science and Informatics. The undergraduate programs in the Department of Computer Science and Engineering are accredited by the Computing Accreditation Commission of ABET.

Artificial Intelligence, B.S. (Pending Final Approvals)

The Bachelor of Artificial Intelligence degree provides students the opportunity to gain cutting-edge AI knowledge and skills with a solid theoretical foundation as well as a good understanding of different application areas. This bachelor program prepares students for a productive career in industry, lifelong learning, and for graduate study in AI. The BS in AI is strategically designed to build on the strengths of existing computing programs on campus and produce well-rounded students with a balance between strong theoretical foundations as well as practical and hands-on technical skills. The program also includes a strong professional component for the development of skills in technical communication, ethics, and teamwork. The program was designed to satisfy the local and national industry needs and student learning perspectives. To earn a Bachelor of Science degree in AI students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

- Understand representations, algorithms and techniques used across works in Artificial Intelligence and be able to apply and evaluate them in applications as well as develop their own.
- Understand and apply machine-learning techniques, in particular to draw inferences from data and help automate the development of AI systems and components.
- Understand the various ways and reasons humans are integrated into mixed human-AI environments, whether it is to improve overall integrated system performance, improve AI performance or influence human performance and learning.
- Understand the ethical concerns in developing responsible AI technologies.
- Implement AI systems, model human behavior, and evaluate their performance.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Artificial Intelligence, B.S.

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below.

Foundations

- Writing Foundations (WRT 1060)
- Formal Reasoning (Satisfied by MTH 1554; see Mathematics and sciences)

Explorations: One course from each of the seven Explorations areas

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (Satisfied by an approved science elective with lab; see Mathematics and Sciences)
- Social Science
- Western Civilization (Satisfied by PHL 1310; see additional major requirements)

Integration:

- Knowledge Applications (Satisfied by MTH 1555; see Mathematics and sciences)

U.S. Diversity:

- May be met by an approved course in the Explorations area.

Writing Intensive and Capstone:

- Capstone (Satisfied by CSI 4999; see Required professional subjects)
- Writing Intensive in the Major (Satisfied by CSI 4999; see Required professional subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements:

All students must complete the following requirement.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and Statistics (20 credits)

- APM 2663 - Discrete Mathematics (4)
- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- MTH 2775 - Linear Algebra (4)
- STA 2226 - Applied Probability and Statistics (4)

Artificial Intelligence Core (18 credits)

- CSI 1420 - Introduction to C Programming and Unix (4) or CSI 1320 - Introduction to Python Programming and Unix (4)
- CSI 2300 - Object-Oriented Computing (4)
- CSI 2310 - Data Structures (4)
- CSI 2490 - Introduction to Artificial Intelligence: Representation, Concepts and Problem Solving (4)
- CSI 2999 - Sophomore Project (2)

Required professional subjects (44 credits)

- CSI 3370 - Software Engineering and Practice (4)
- CSI 3430 - Theory of Computation (4)
- CSI 3610 - Design and Analysis of Algorithms (4)
- CSI 4100 - Ethics and Bias in AI (4)
- CSI 4130 - Artificial Intelligence (4)
- CSI 4140 - Deep Learning and Applications (4)
- CSI 4150 - AI for IT Operations (4)
- CSI 4170 - Machine Learning (4)
- CSI 4180 - Natural Language Processing (4)
- CSI 4810 - Information Retrieval and Knowledge Discovery (4)
- CSI 4999 - Senior Capstone Project (4)

Depth areas/ Professional track (12 credits)

Select one of the following professional tracks:

A) Edge AI and IoT Track

- CSI 4110 - Foundations of Edge AI (4)
- CSI 4230 - Mobile and Smart Phone Application Development (4)
- CSI 4240 - Cloud Computing (4)

B) Embedded AI Track

- ECE 4731 - Fundamentals of Embedded System Design (4)
- ECE 4900 - ST: Embedded Artificial Intelligence (4)

Choose one from following courses:

- CSI 4110 - Foundations of Edge AI (4)
- ECE 4520 - Automotive Mechatronics I (4)

C) Human-Centered AI and Robotics Track

- CSI 4800 - AI-Human Interaction (4)

Choose two from following courses:

- CSI 3500 - Human Computer Interaction (4)
- CSI 4550 - Visual Computing (4)
- ECE 4500 - Robotic Systems and Control (4)
- ECE 4510 - Machine Vision (4)
- ECE 4551 - Human Robot Interaction (4)
- ISE 4422 - Robotic Systems (4)
- ISE 4441 - Human Factors Engineering (4)
- ISE 4900 - Special Topics (2 TO 4)

D) AI for Cyber Security and Trustworthy AI Track

- CSI 4580 - AI for Cybersecurity and Privacy (4)

Choose two from following courses:

- CSI 4370 - Software Verification and Testing (4)
- CSI 4520 - Industrial Control Security (4)
- CSI 4560 - Mobile Security (4)
- CSI 4700 - Software Security (4)

- CSI 4790 - Automotive Security (4)
- ECE 4780 - Embedded Security (4)

E) Augmented/Virtual Reality Track

- ISE 4900 - Special Topics (2 TO 4)
- CSI 4550 - Visual Computing (4)

Choose one from following courses:

- CSI 3380 - Game Design (4)
- CSI 4380 - Game Programming (4)
- ECE 4510 - Machine Vision (4)

F) Smart Manufacturing and Industry 4.0 Track

Choose three from following courses:

- CSI 4800 - AI-Human Interaction (4)
- ECE 4551 - Human Robot Interaction (4)
- ISE 4410 - Supply Chain Modeling and Analysis (4)
- ISE 4423 - Industrial Automation Systems (4)
- ISE 4435 - Data Analytics (4)
- ISE 4900 - Special Topics (2 TO 4)

Professional Electives (6 credits)

Complete 2 credits of the following 2000 level courses:

- CSI 2320 - C++ for Programmers (2)
- CSI 2330 - Immersive Python (2)
- CSI 2340 - Ruby for Web Developers (2)
- CSI 2350 - Programming in Visual C# for .NET Technology (2)

And: 4 credits from one of these options (A-C):

A) Any class in one of the depth areas not chosen as a primary specialty.

B) Courses at the 5000 level, with instructor approval.

C) Any 3000 or 4000 level class in Engineering, Computer Science, or Mathematics not currently part of the AI curriculum.

Below are some suggested classes:

- APM 3332 - Applied Matrix Theory (4)

- APM 4333 - Numerical Methods (4)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- APM 4347 - Mathematics of Cryptology (4)
- APM 4663 - Applied Mathematics: Discrete Methods I (4)
- APM 4777 - Computer Algebra (4)
- CSI 3610 - Design and Analysis of Algorithms (4)
- CSI 4500 - Operating Systems (4)
- ECE 3720 - Microprocessors (4)
- MTH 3552 - Complex Variables (4)
- PHY 3250 - Biological Physics (4)
- PHY 3260 - Medical Physics (4)
- PHY 3310 - Optics (4)
- PHY 3660 - Vibrations and Waves (4)
- PHY 3710 - Foundations of Modern Physics (4)

Major Standing

To enroll in 3000- or higher-level courses and to become candidates for the degree of Bachelor of Science in Artificial Intelligence, students must gain a major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher-level courses. Forms may be obtained from the SECS Undergraduate Advising Office or from the SECS website.

To gain major standing in Artificial Intelligence, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, MTH 2775, APM 2663, and STA 2226.

B) have an average GPA of 2.0 in the following AI core courses: CSI 1420 - Introduction to C Programming and Unix (4) OR CSI 1320 - Introduction to Python Programming and Unix (4); CSI 2300 - Object-Oriented Computing (4); CSI 2310 - Data Structures (4); CSI 2490 - Introduction to Artificial Intelligence: Representation, Concepts and Problem Solving (4); CSI 2999 - Sophomore Project (2)

C) have no more than two grades below C in the courses listed in A and B above.

D) have not attempted any course listed in A and B above more than three times. Students may petition to repeat a course a fourth time.

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete requirements A and B above.

Performance requirements

Satisfactory completion of the program requires an average grade of at least 2.0 within each group: mathematics and sciences, AI core, and professional courses (including required professional subjects, professional electives, and professional track). Within professional courses at most two grades below C are permitted, at most two different courses may be repeated, and a total of three attempts per course is permitted.

Sample AI schedule

Students entering the School of Engineering and Computer Science with the required background may follow a schedule such as the one indicated below. However, students will need additional time to complete the program if they do not have the required background upon entrance to the program.

Freshman year

Fall semester -- 16 credits

- CSI 1420 - Introduction to C Programming and Unix (4)
- MTH 1554 - Calculus I (4)
- General education (4)
- General education (4)

Winter semester -- 16 credits

- CSI 2300 - Object-Oriented Computing (4)
- MTH 1555 - Calculus II (4)
- Approved science elective with lab (4)
- General education (4)

Sophomore year

Fall semester -- 16 credits

- CSI 2490 - Introduction to Artificial Intelligence: Representation, Concepts and Problem Solving (4)
- CSI 2310 - Data Structures (4)
- Math elective (4)
- General education (4)

Winter semester -- 14 credits

- CSI 3370 - Software Engineering and Practice (4)
- CSI 2999 - Sophomore Project (2)
- CSI 3610 - Design and Analysis of Algorithms (4)
- General education (4)

Junior year

Fall semester -- 16 credits

- CSI 3430 - Theory of Computation (4)
- CSI 4130 - Artificial Intelligence (4)
- CSI 4810 - Information Retrieval and Knowledge Discovery (4)
- Math elective (4)

Winter semester -- 16 credits

- CSI 4140 - Deep Learning and Applications (4)
- CSI 4160 - Integrated Computing Systems (4)
- CSI 4170 - Machine Learning (4)
- CSI 4240 - Cloud Computing (4)

Senior year

Fall semester -- 18 credits

- CSI 4180 - Natural Language Processing (4)
- CSI 4150 - AI for IT Operations (4)
- Professional track (4)
- Professional elective (2)
- Professional elective (4)

Winter semester -- 12 credits

- CSI 4160 - Integrated Computing Systems (4)
- CSI 4230 - Mobile and Smart Phone Application Development (4)
- CSI 4999 - Senior Capstone Project (4)

Computer Science, B.S.

The program in computer science leading to a Bachelor of Science degree prepares students for a productive career in industry, and for graduate study in computer science. The program prepares the students for a productive career in industry by providing them with the technical skills to formulate suitable abstractions, create novel computational solutions, design complex systems, and improve on existing solutions integrating current and emerging technologies. The program prepares the students for lifelong learning and graduate school by providing them with the theoretical foundations of information and computation and exposing them to areas of current and future developments. The program also includes a strong professional component for the development of skills in technical communication, ethics, and teamwork. The BS in Computer Science program is accredited by the Computing Accreditation Commission of ABET. To earn the Bachelor of Science degree with a major in computer science students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

In the course of their careers, graduates of the Computer Science program will:

- Work productively in the creation, maintenance, and improvement of computing systems.
- Remain current in their profession through lifelong learning, including graduate school.
- Exhibit leadership and exercise their profession with the highest level of ethics, and social responsibility.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in computer science, B.S. program

Course requirements (minimum of 128 total credits). To earn the Bachelor of Science degree with a major in computer science students must complete a minimum of 128 credits and meet the following requirements:

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below.

Foundations

- Writing Foundations (WRT 1060)
- Formal Reasoning (Satisfied by MTH 1554; see Mathematics and sciences)

Explorations: One course from each of the seven Explorations areas

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (Satisfied by an approved science elective with lab; see Mathematics and Sciences)
- Social Science
- Western Civilization (Satisfied by PHL 1310; see additional major requirements)

Integration

- Knowledge Applications (Satisfied by MTH 1555; see Mathematics and sciences)

U.S. Diversity

- May be met by an approved course in the Explorations area.

Writing Intensive and Capstone

- Capstone (Satisfied by CSI 4999; see Required professional subjects)

- Writing Intensive in the Major (Satisfied by CSI 4999; see Required professional subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements

All students must complete the following requirement.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and science

- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- MTH 2775 - Linear Algebra (4)
- APM 2663 - Discrete Mathematics (4)
- STA 2226 - Applied Probability and Statistics (4)
- Approved science elective with lab (5)
- Approved science elective (4)

Approved science elective with lab*

Take one of the following biology, chemistry, or physics courses with the corresponding laboratory:

- BIO 1200 - Biology I (4) and BIO 1201 - Biology Laboratory (1)
- BIO 1300 - Biology II (4) and BIO 1201 - Biology Laboratory (1)
- CHM 1440 - General Chemistry I (4) and CHM 1470 - General Chemistry Laboratory I (1)
- PHY 1510 - Introductory Physics I (4) and PHY 1100 - General Physics Lab I (1)

Approved science elective*

Take one additional science course from the following list

- BIO 1200 - Biology I (4)
- BIO 1300 - Biology II (4)
- CHM 1440 - General Chemistry I (4)

- PHY 1610 - Fundamentals of Physics I (4)
- PHY 1620 - Fundamentals of Physics II (4)

*Students may not receive credit for both PHY 1510 and PHY 1610.

Computer science core

- CSI 1420 - Introduction to C Programming and Unix (4)
- CSI 2300 - Object-Oriented Computing (4)
- CSI 2310 - Data Structures (4)
- CSI 2470 - Introduction to Computer Networks (4)
- CSI 2999 - Sophomore Project (2)

Required professional subjects

- CSI 3370 - Software Engineering and Practice (4)
- CSI 3430 - Theory of Computation (4)
- CSI 3450 - Database Design and Implementation (4)
- CSI 3480 - Security and Privacy in Computing (4)
- CSI 3610 - Design and Analysis of Algorithms (4)
- CSI 3640 - Computer Organization (4)
- CSI 4350 - Programming Languages (4)
- CSI 4500 - Operating Systems (4)
- CSI 4650 - Parallel and Distributed Computing (4)
- CSI 4999 - Senior Capstone Project (4)

Professional track

Select two courses from one of the following professional tracks:

Computational Intelligence Track

- CSI 4130 - Artificial Intelligence (4)
- CSI 4140 - Deep Learning and Applications (4)
- CSI 4170 - Machine Learning (4)
- CSI 4180 - Natural Language Processing (4)
- CSI 4550 - Visual Computing (4)
- CSI 4810 - Information Retrieval and Knowledge Discovery (4)

Decision Optimization Track

- MOR 3330 - Engineering Operations Research (3)
- CSI 4170 - Machine Learning (4)

System Administration Track

- CSI 3660 - System Administration (4)
- CSI 4660 - Advanced System Administration (4)

Bioinformatics Track

- BIO 3400 - Genetics (4)
- CSI 4780 - Bioinformatics (4)

Cybersecurity Track

- CSI 4460 - Information Security (4)
- CSI 4480 - Information Security Practices (4)
- CSI 4700 - Software Security (4)
- APM 4347 - Mathematics of Cryptology (4)

Game Development Track

- CSI 3380 - Game Design (4)
- CSI 4380 - Game Programming (4)

Mobile Applications Development Track

- CSI 3150 - Web and Mobile Systems (4)
- CSI 4230 - Mobile and Smart Phone Application Development (4)

Web Development Track

- CSI 3150 - Web and Mobile Systems (4)
- CSI 4160 - Integrated Computing Systems (4)
- CSI 4510 - Advanced Web Design Application (4)

Students following older catalogs will be able to count courses under one of the tracks listed above to satisfy their professional track requirements.

Professional electives

Take 5 credits from the following courses.

Any 3000, 4000, or 5000 level engineering or computer science or information technology courses. No more than 1-credit of CSI 4950 (Internship) can be used to fulfill the professional electives requirement. Courses at the 5000-level require approval of the instructor.

No more than one of the following 2000 level courses:

- CSI 2320 - C++ for Programmers (2)
- CSI 2330 - Immersive Python (2)
- CSI 2340 - Ruby for Web Developers (2)
- CSI 2350 - Programming in Visual C# for .NET Technology (2)

Any math, science or engineering elective from the following:

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- APM 3332 - Applied Matrix Theory (4)
- APM 4333 - Numerical Methods (4)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- APM 4663 - Applied Mathematics: Discrete Methods I (4)
- APM 4777 - Computer Algebra (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- MTH 3552 - Complex Variables (4)
- MOR 2442 - Elementary Models in Operations Research (4)
- PHY 1110 - General Physics Lab II (1)
- PHY 3250 - Biological Physics (4)
- PHY 3260 - Medical Physics (4)
- PHY 3310 - Optics (4)
- PHY 3660 - Vibrations and Waves (4)
- PHY 3710 - Foundations of Modern Physics (4)

Students who are interested in other upper level mathematical and natural sciences courses to satisfy their professional electives requirements should consult an academic adviser.

Minimum credit hour requirements in mathematics and sciences

Students must complete all five required mathematics and statistics courses for a minimum of 15 credits. Students with fewer than 15 credits of required mathematics and statistics, for example due to

transfers from another institution, must take additional courses to satisfy the requirement. Any additional course must be approved by a petition of exception.

Students must complete an approved science elective and an approved science elective with lab for a minimum of 6 credits. Students with fewer than 6 credits of sciences, for example due to transfers from another institution, must take additional courses to satisfy the requirements. Any additional course must be approved by a petition of exception.

Major standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science with a major in Computer Science, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Students can obtain the major standing form from the SECS Undergraduate Advising Website. At the time that major standing is approved, students with majors of Pre-Computer Science will have their major changed to Computer Science. Approval of both a major standing application and change of major to Computer Science is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Computer Science, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, MTH 2775, APM 2663 and an approved science elective with lab.

B) have an average GPA of 2.0 in the following computer science core courses: CSI 1420, CSI 2300, CSI 2310, CSI 2470, and CSI 2999.

C) have no more than two grades below C in the courses listed in A and B above.

D) have not attempted any course listed in A and B above more than three times.

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete requirements A and B above.

Students who have questions about petition of exception, transfer credit, academic standing, major standing, or any other aspects of their degree programs should consult an academic adviser and other relevant sections of the undergraduate catalog.

Performance requirements

Satisfactory completion of the program requires an average grade of at least 2.0 within each group: mathematics and sciences, computer science core, and professional courses (including required professional subjects, professional electives, and professional track). Within the professional courses at most two different courses may be repeated, a total of three attempts per course is permitted, and at most two grades below C are permitted. A grade of C or better in CSI 4999 (Senior Capstone Project) must be received.

Sample computer science schedule

Students entering the School of Engineering and Computer Science with the required background may follow a schedule such as the one indicated below. However, students will need additional time to complete the program if they do not have the required background upon entrance to the program.

Freshman year

Fall semester -- 16 credits

- MTH 1554 - Calculus I (4)
- CSI 1420 - Introduction to C Programming and Unix (4)
- General education (4)
- General education (4)

Winter semester -- 17 credits

- CSI 2300 - Object-Oriented Computing (4)
- MTH 1555 - Calculus II (4)
- Approved science elective with lab (5)
- General education (4)

Sophomore year

Fall semester -- 16 credits

- APM 2663 - Discrete Mathematics (4)
- CSI 2310 - Data Structures (4)
- Approved science elective (4)
- General education (4)

Winter semester -- 18 credits

- MTH 2775 - Linear Algebra (4)
- CSI 2470 - Introduction to Computer Networks (4)
- CSI 2999 - Sophomore Project (2)
- General education (4)
- General education (4)

Junior year

Fall semester -- 16 credits

- STA 2226 - Applied Probability and Statistics (4)

- CSI 3610 - Design and Analysis of Algorithms (4)
- CSI 3640 - Computer Organization (4)
- General education (4)

Winter semester -- 16 credits

- CSI 3370 - Software Engineering and Practice (4)
- CSI 3430 - Theory of Computation (4)
- CSI 3450 - Database Design and Implementation (4)
- CSI 4650 - Parallel and Distributed Computing (4)

Senior year

Fall semester -- 16 credits

- CSI 3480 - Security and Privacy in Computing (4)
- CSI 4350 - Programming Languages (4)
- Professional elective (4)
- Professional track (4)

Winter semester -- 13 credits

- CSI 4500 - Operating Systems (4)
- CSI 4999 - Senior Capstone Project (4)
- Professional elective (1)
- Professional track (4)

Computer Science, B.S., Specialization in Artificial Intelligence

The Department of Computer Science and Engineering offers an optional specialization in Artificial Intelligence to students interested in broadening their knowledge in this specific area of computer science and wishing this area of specialization in their degree. The specialization is available to, but not required of, any student enrolled in the Bachelor of Science degree in Computer Science. The specialization will be noted on the transcript and diploma of the students.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Artificial Intelligence Specialization

To earn a Bachelor of Science degree in Computer Science with a specialization in Artificial Intelligence, students must complete the following sequence of courses to satisfy their professional track and professional electives requirements of the Bachelor of Science degree in Computer Science. Students who are interested in the specialization are advised to select the Computational Intelligence Track. See Computer Science, B.S. for degree requirements.

In general, students may require up to 131 credits to complete the specialization. However, by careful selection of courses students may be able to complete the specialization with no more than 128 credits. Students who are interested in the specialization should consult an academic adviser for guidance on course selection.

Primary Subject

Select one of the following courses

- CSI 4130 - Artificial Intelligence (4)
- CSI 4140 - Deep Learning and Applications (4)
- CSI 4170 - Machine Learning (4)

Additional Subjects

Select additional three courses from the following

- CSI 4130 - Artificial Intelligence (4)
- CSI 4140 - Deep Learning and Applications (4)
- CSI 4170 - Machine Learning (4)
- CSI 4180 - Natural Language Processing (4)
- CSI 4550 - Visual Computing (4)
- CSI 4810 - Information Retrieval and Knowledge Discovery (4)

Note

Students can substitute one of the additional subjects with at least 3 credits of CSI 4900 (Special Topics), CSI 4995 (Undergraduate Research), or CSI 4996 (Independent Study) provided that the coursework is in the area of artificial intelligence. Approvals of both the instructor and the chair of the Department of Computer Science and Engineering are required for such a substitution.

Cybersecurity, B.S. (Pending Final Approvals)

The Bachelor of Cybersecurity degree provides students the opportunity to gain cutting-edge cybersecurity knowledge and skills with a solid theoretical foundation as well as a good understanding of

the social, ethical, legal, and policy aspects of cybersecurity. This bachelor program prepares students for a productive career in industry, lifelong learning, and for graduate study in Cybersecurity. The new degree is strategically designed to build on the strengths of existing computing programs on campus and produce well-rounded students with a balance between strong theoretical foundations as well as practical and hands-on technical skills. The program also includes a strong professional component for the development of skills in technical communication, ethics, and teamwork. To earn a Bachelor of Science degree with a major in cybersecurity students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

In the course of their careers, graduates of the BS in Cybersecurity program will:

- Work productively in the creation, maintenance, administration, and improvement of secure computing systems and associated infrastructure.
- Remain current in their profession through lifelong learning, including graduate school.
- Exhibit leadership and exercise their profession with the highest level of ethics, and social responsibility.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Cybersecurity, B.S.

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below.

Foundations:

- Writing Foundations (WRT 1060)
- Formal Reasoning (Satisfied by MTH 1554; see Mathematics and sciences)

Explorations: One course from each of the seven Explorations areas

- Arts
- Language and Culture
- Global Perspective

- Literature
- Natural Science and Technology (Satisfied by an approved science elective with lab; see Mathematics and Sciences)
- Social Science
- Western Civilization (Satisfied by PHL 1310; see additional major requirements)

Integration:

- Knowledge Applications (Satisfied by MTH 1555; see Mathematics and sciences)

U.S. Diversity:

- May be met by an approved course in the Explorations area

Writing Intensive and Capstone:

- Capstone (Satisfied by CSI 4999; see Required professional subjects)
- Writing Intensive in the Major (Satisfied by CSI 4999; see Required professional subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional major requirements:

All students must complete the following requirement.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Math and Statistics (16 credits)

- APM 2663 - Discrete Mathematics (4)
- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- STA 2226 - Applied Probability and Statistics (4)

Cybersecurity Core (22 credits)

- CSI 1420 - Introduction to C Programming and Unix (4)
- CSI 2300 - Object-Oriented Computing (4)
- CSI 2440 - Computer Systems (4)
- CSI 2460 - Fundamentals of Cybersecurity (4)

- CSI 2470 - Introduction to Computer Networks (4)
- CSI 2999 - Sophomore Project (2)

Required professional subjects (43 credits)

- CSI 3370 - Software Engineering and Practice (4)
- CSI 3450 - Database Design and Implementation (4)
- CSI 3660 - System Administration (4)
- CSI 4240 - Cloud Computing (4)
- CSI 4480 - Information Security Practices (4)
- CSI 4600 - Network Security (4)
- CSI 4700 - Software Security (4)
- CSI 4740 - Cyber Laws and Digital Forensics (4)
- CSI 4999 - Senior Capstone Project (4)
- CRJ 3341 - Cybercrime (4)
- MIS 4180 - IS Risk Analysis and Security Controls Development (3)

Depth areas/Professional track (12 credits)

Select one of the following professional tracks

A) Software Security Track

- CSI 4560 - Mobile Security (4)
- CSI 4880 - Reverse Engineering and Malware Analysis (4)

B) AI in Cybersecurity Track

- CSI 4130 - Artificial Intelligence (4)
- CSI 4580 - AI for Cybersecurity and Privacy (4)
- CSI 4590 - Multimedia Forensics (4)

C) Cyber Physical System (CPS) security Track

- ECE 4731 - Fundamentals of Embedded System Design (4)

Choose two from following three:

- CSI 4520 - Industrial Control Security (4)
- CSI 4790 - Automotive Security (4)
- ECE 4780 - Embedded Security/5780 (4)

Professional Electives (6 credits)

One of the following 2000 level courses:

- CSI 2320 - C++ for Programmers (2)
- CSI 2330 - Immersive Python (2)
- CSI 2340 - Ruby for Web Developers (2)
- CSI 2350 - Programming in Visual C# for .NET Technology (2)

And one 4-credit class from following choices (A-C):

A) Any class in one of the depth areas not chosen as a primary specialty

B) Courses at the 5000 level, with instructor approval

C) Any 3000 or 4000 level class in Engineering, Computer Science,
or Mathematics not currently part of the Cybersecurity curriculum

Below are some suggested classes:

- APM 3332 - Applied Matrix Theory (4)
- APM 4333 - Numerical Methods (4)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- APM 4347 - Mathematics of Cryptology (4)
- APM 4777 - Computer Algebra (4)
- CSI 3610 - Design and Analysis of Algorithms (4)
- CSI 4500 - Operating Systems (4)
- ECE 3720 - Microprocessors (4)
- MTH 3552 - Complex Variables (4)
- PHY 3250 - Biological Physics (4)
- PHY 3260 - Medical Physics (4)
- PHY 3310 - Optics (4)
- PHY 3660 - Vibrations and Waves (4)
- PHY 3710 - Foundations of Modern Physics (4)

Major standing

To enroll in 3000- or higher-level courses and to become candidates for the degree of Bachelor of Science in Cybersecurity, students must gain a major standing. An application for major standing should

be submitted prior to intended enrollment in 3000- or higher-level courses. Forms may be obtained from the SECS Undergraduate Advising Office or from the SECS website.

To gain major standing in Cybersecurity, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, MTH 2775, APM 2663, and STA 2226.

B) have an average GPA of 2.0 in the following cybersecurity core courses: CSI 1420, CSI 2300, CSI 2310, CSI 2460, CSI 2470, and CSI 2999.

C) have no more than two grades below C in the courses listed in A and B above.

D) have not attempted any course listed in A and B above more than three times. Students may petition to repeat a course a fourth time.

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete requirements A and B above.

Performance requirements

Satisfactory completion of the program requires an average grade of at least 2.0 within each group: mathematics and sciences, computer science core, and professional courses (including required professional subjects, professional electives, and professional track). Within professional courses at most two grades below C are permitted, at most two different courses may be repeated, and a total of three attempts per course is permitted.

Sample cybersecurity schedule

Freshman year

Fall semester - 16 credits

- CSI 1420 - Introduction to C Programming and Unix (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- General education (4)
- General education (4)

Winter semester -- 16 credits

- CSI 1210 - Problem Solving Using VBA and Excel (4)
- CSI 2460 - Fundamentals of Cybersecurity (4)
- STA 2221 - Introduction to Statistical Methods (4)
- General education (4)

Sophomore year

Fall semester -- 16 credits

- APM 1663 - Mathematics for Information Technology (4)
- CSI 2470 - Introduction to Computer Networks (4)
- General education (4)
- General education (4)

Winter semester -- 18 credits

- CSI 2440 - Computer Systems (4)
- CSI 2999 - Sophomore Project (2)
- Approved science elective (4)
- General education (4)
- General education (4)

Junior year

Fall semester -- 16 credits

- CSI 3660 - System Administration (4)
- CSI 4480 - Information Security Practices (4)
- CSI 3370 - Software Engineering and Practice (4)
- Communications (4)

Winter semester -- 15 credits

- MIS 4180 - IS Risk Analysis and Security Controls Development (3)
- CSI 4700 - Software Security (4)
- CSI 3450 - Database Design and Implementation (4)
- Professional track (4)

Senior year

Fall semester -- 14 credits

- CSI 4240 - Cloud Computing (4)
- Professional training (2)
- Professional track (4)
- Professional elective (4)

Winter semester -- 16 credits

- CSI 4470 - Digital Forensics (4)
- CSI 4600 - Network Security (4)
- CSI 4999 - Senior Capstone Project (4)
- Professional elective (4)

Information Technology, B.S.

The program in Information Technology (IT) leading to a bachelor of science (BS) degree prepares students for a successful professional career in IT, and for graduate study in information technology. The program provides students with the technical foundation of information technology, problem solving skills, and hands-on practice. This will help students create and improve IT solutions by integrating existing and emerging technologies. This program prepares students for graduate studies and lifelong learning by providing them with the theoretical foundations of information technology and exposing them to areas of current and future practices. The pillars of IT include programming, networking, human-computer interaction, databases, information management, and web systems, built on a foundation of knowledge of the fundamentals of IT. The program also includes a strong professional component to develop skills in technical communication, ethics, and team work. The BS in Information Technology program is accredited by the Computing Accreditation Commission of ABET. To earn the Bachelor of Science degree with a major in information technology, students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

- In the course of their careers, graduates of the Information Technology program will:
- Work productively as problem solvers and providers of integrated IT solutions.
- Remain current in their profession through lifelong learning, including graduate school.
- Exhibit teamwork and leadership as well as exercise their profession with the highest level of ethics and social responsibility.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in information technology, B.S. program

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below.

Foundations:

- Writing Foundations (WRT 1060)
- Formal Reasoning (Satisfied by MTH 1554 or MTH 1222; see Mathematics and sciences)

Explorations: One course from each of the seven Explorations areas

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (Satisfied by approved science elective; see Mathematics and sciences)
- Social Science
- Western Civilization (Satisfied by PHL 1310); see Additional Major Requirements)

Integration:

- Knowledge Applications (Satisfied by APM 1663; see Mathematics and sciences)

U.S. Diversity:

- May be met by an approved course in the Explorations area.

Writing Intensive and Capstone:

- Capstone (Satisfied by CSI 4999; see Required professional subjects)
- Writing Intensive in the Major (Satisfied by CSI 4999; see Required professional subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements

All students must complete the following requirement.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and sciences

- MTH 1554 - Calculus I (4) or MTH 1222 - Calculus for the Social Sciences (4)
- STA 2221 - Introduction to Statistical Methods (4)
- APM 1663 - Mathematics for Information Technology (4)
- Approved science elective (4)*

*Approved science electives for information technology majors are: BIO 1200, BIO 1300, CHM 1440 and CHM 1470, ENV 3080, PHY 1510 and PHY 1100.

Information technology core

- CSI 1210 - Problem Solving Using VBA and Excel (4)
- CSI 1320 - Introduction to Python Programming and Unix (4)
- CSI 2300 - Object-Oriented Computing (4)
- CSI 2440 - Computer Systems (4)
- CSI 2470 - Introduction to Computer Networks (4)
- CSI 2999 - Sophomore Project (2)

Required professional subjects

- CSI 3150 - Web and Mobile Systems (4)
- CSI 3370 - Software Engineering and Practice (4)
- CSI 3450 - Database Design and Implementation (4)
- CSI 3480 - Security and Privacy in Computing (4)
- CSI 3500 - Human Computer Interaction (4)
- CSI 3620 - Data Structures and Algorithms (4)
- CSI 3660 - System Administration (4)
- CSI 4160 - Integrated Computing Systems (4)
- CSI 4430 - IT Project Management (4)
- CSI 4999 - Senior Capstone Project (4)

Professional track

Select two courses from one of the following professional tracks

System Administration Track

- CSI 3680 - Script Programming (4)
- CSI 4660 - Advanced System Administration (4)

Bioinformatics Track

- BIO 3400 - Genetics (4)
- CSI 4780 - Bioinformatics (4)

Game Development Track

- CSI 3380 - Game Design (4)
- CSI 4380 - Game Programming (4)

Cybersecurity Track

- CSI 4460 - Information Security (4)
- CSI 4480 - Information Security Practices (4)
- CSI 4700 - Software Security (4)

Applications Development Track

- CSI 4230 - Mobile and Smart Phone Application Development (4)
- CSI 4510 - Advanced Web Design Application (4)

Students following older catalogs will be able to count courses under one of the tracks listed above to satisfy their professional track requirements.

Professional training

Take 2 credits from one of the following courses:

- CSI 4950 - Internship (2)
- CSI 4955 - Industrial Project (2)
- CSI 4995 - Undergraduate Research (2)

Communications

Choose one of the following courses:

- COM 2403 - Group Dynamics and Communication (4)
- COM 3300 - Communication, Culture, and Belonging (4)
- COM 3401 - Communication in Organizations (4)
- COM 3402 - Communication in Leadership (4)

Professional electives

Take 8 credits from the following courses:

Select CSI 2320, CSI 2340, CSI 2350, CSI 2360, or any CSI courses at 3000 or higher level. CSI 4950 - Internship cannot be used to fulfill the professional electives requirements. Courses at the 5000-level require approval of the instructor.

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science with a major in Information Technology, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Students can obtain the major standing form from the SECS Undergraduate Advising Website. At the time that major standing is approved, students with majors of Pre-Information Technology will have their major changed to Information Technology. Approval of both a major standing application and

change of major to Information Technology is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing Information Technology, students must:

- A) have an average GPA of 2.0 in the following mathematics and science courses: Either MTH 1222 or MTH 1554, APM 1663 and approved science elective.
- B) have an average GPA of 2.0 in the following information technology core courses: CSI 1210, CSI 1320, CSI 2300, CSI 2440, CSI 2470 and CSI 2999.
- C) have no more than two grades below C in the courses listed in A and B above.
- D) have not attempted any course listed in A and B above more than three times.
- E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete requirements A and B above.

Students who have questions about petition of exception, transfer credit, academic standing, major standing, or any other aspects of their degree programs should consult an academic adviser and other relevant sections of the undergraduate catalog.

Performance requirements

Satisfactory completion of the program requires an average grade of at least 2.0 within each group: mathematics and sciences, information technology core, and professional courses (including required professional subjects, professional track, communications, and professional electives). Within the professional courses at most two different courses may be repeated, a total of three attempts per course is permitted, and at most two grades below C are permitted. A grade of C or better in CSI 4999 (Senior Capstone Project) must be received.

Sample information technology schedule

Students entering the School of Engineering and Computer Science with the required background may follow a schedule such as the one indicated below. However, students will need additional time to complete the program if they do not have the required background upon entrance to the program.

Freshman year

Fall semester -- 16 credits

- CSI 1320 - Introduction to Python Programming and Unix (4)
- MTH 1222 - Calculus for the Social Sciences (4) or MTH 1554 - Calculus I (4)
- General education (4)
- General education (4)

Winter semester -- 16 credits

- CSI 1210 - Problem Solving Using VBA and Excel (4)
- CSI 2300 - Object-Oriented Computing (4)
- STA 2221 - Introduction to Statistical Methods (4)
- General education (4)

Sophomore year

Fall semester -- 16 credits

- APM 1663 - Mathematics for Information Technology (4)
- CSI 2470 - Introduction to Computer Networks (4)
- General education (4)
- General education (4)

Winter semester -- 18 credits

- CSI 2440 - Computer Systems (4)
- CSI 2999 - Sophomore Project (2)
- Approved science elective (4)
- General education (4)
- General education (4)

Junior year

Fall semester -- 16 credits

- CSI 3150 - Web and Mobile Systems (4)
- CSI 3500 - Human Computer Interaction (4)
- CSI 3660 - System Administration (4)
- Communications (4)

Winter semester -- 16 credits

- CSI 3370 - Software Engineering and Practice (4)
- CSI 3450 - Database Design and Implementation (4)
- CSI 3620 - Data Structures and Algorithms (4)
- Professional track (4)

Senior year

Fall semester -- 14 credits

- CSI 3480 - Security and Privacy in Computing (4)
- Professional training (2)
- Professional track (4)
- Professional elective (4)

Winter semester -- 16 credits

- CSI 4160 - Integrated Computing Systems (4)
- CSI 4430 - IT Project Management (4)
- CSI 4999 - Senior Capstone Project (4)
- Professional elective (4)

Information Technology, B.S., Specialization in System Administration

The Department of Computer Science and Engineering offers an optional specialization in System Administration to students interested in broadening their knowledge in this specific area of information technology and wishing the area of specialization in their degree. The specialization is available to, but not required of, any student enrolled in the Bachelor of Science degree in Information Technology. The specialization will be noted on the transcript and diploma of the students.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Information Technology, B.S., Specialization in System Administration

To earn a Bachelor of Science degree in Information Technology with a specialization in System Administration, students must complete the following sequence of courses to satisfy their professional track and professional electives requirements of the Bachelor of Science degree in Information Technology. See Information Technology degree requirements for detail. Students who are interested in the specialization are advised to select System Administration Track and to consult an academic adviser for guidance on course selection. Completing the specialization requires 128 credits.

Required subjects

Take the following three courses

- CSI 3680 - Script Programming (4)
- CSI 4240 - Cloud Computing (4)
- CSI 4660 - Advanced System Administration (4)

Additional subjects

Select one course from the following

- CSI 4460 - Information Security (4)
- CSI 4480 - Information Security Practices (4)
- CSI 4700 - Software Security (4)

Note

Students can substitute one of the additional subjects with CSI 4900 (Special Topics), CSI 4995 (Undergraduate Research), or CSI 4996 (Independent Study) provided that the coursework is in the area of system administration. Approvals of both the instructor and the chair of the Department of Computer Science and Engineering are required for such a substitution.

Computer Science, B.S., Software Engineering and Information Technology, M.S., Combined B.S./M.S.

The Combined BS/MS in Computer Science (BS) and Software Engineering and Information Technology (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Computer Science/Software Engineering and Information Technology, Combined B.S./M.S. option, students must:

1. Have a major GPA of 3.2 or above.
2. Apply for and receive delayed admission in the M.S. program and thereby the double-counting of three graduate classes (12 credits)
3. Maintain a minimum 3.2 cumulative GPA to completion of the degree in Computer Science, B.S.

Computer Science, B.S./Cybersecurity, M.S., Combined B.S./M.S.

The Combined BS/MS in Computer Science (BS) and Cyber Security (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Computer Science/Cybersecurity, Combined B.S./M.S. option, students must:

1. Have a major GPA of 3.2 or above.
2. Apply for and receive delayed admission in the M.S. program and thereby the double-counting of three graduate classes (12 credits)
3. Maintain a minimum 3.2 cumulative GPA to completion of the degree in Computer Science, B.S.

Computer Science, Combined B.S./M.S.

The Combined BS/MS in Computer Science (BS) and Computer Science (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Computer Science, Combined B.S./M.S. option, students must:

1. Have a major GPA of 3.2 or above.
2. Apply for and receive delayed admission in the M.S. program and thereby the double-counting of three graduate classes (12 credits)
3. Maintain a minimum 3.2 cumulative GPA to completion of the degree in Computer Science, B.S.

Information Technology, B.S./Computer Science, M.S., Combined B.S./M.S.

The Combined BS/MS in Information Technology (BS) and Computer Science (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in

order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Information Technology/Computer Science, Combined B.S./M.S. option, students must:

1. Have a major GPA of 3.2 or above.
2. Apply for and receive delayed admission in the M.S. program and thereby the double-counting of three graduate classes (12 credits)
3. Maintain a minimum 3.2 cumulative GPA to completion of the degree in Information Technology, B.S.

Information Technology, B.S./Cybersecurity, M.S., Combined B.S./M.S.

The Combined BS/MS in Information Technology (BS) and Cybersecurity (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Information Technology/Cybersecurity, Combined B.S. to M.S. option, students must:

1. Have a major GPA of 3.2 or above.
2. Apply for and receive delayed admission in the M.S. program and thereby the double-counting of three graduate classes (12 credits)
3. Maintain a minimum 3.2 cumulative GPA to completion of the degree in Information Technology, B.S.

Information Technology, B.S./Software Engineering and Information Technology, M.S., Combined B.S./M.S.

The Combined BS/MS in Information Technology (BS) and Software Engineering and Information Technology (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Information Technology/Software Engineering and Information Technology, Combined B.S. to M.S. option, students must:

1. Have a major GPA of 3.2 or above.
2. Apply for and receive delayed admission in the M.S. program and thereby the double-counting of three graduate classes (12 credits)

3. Maintain a minimum 3.2 cumulative GPA to completion of the degree in Information Technology, B.S.

Artificial Intelligence Minor

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Artificial Intelligence

The minor in Artificial Intelligence focuses on the operation, development, and application of intelligent software systems. It consists of five courses as listed in the following.

Required subjects

Take the following two courses

- CSI 1320 - Introduction to Python Programming and Unix (4)
- CSI 3620 - Data Structures and Algorithms (4)

Primary elective subject

Select one of the following courses

- CSI 4130 - Artificial Intelligence (4)
- CSI 4140 - Deep Learning and Applications (4)
- CSI 4170 - Machine Learning (4)

Additional elective subjects

Select additional two courses from the following

- CSI 4130 - Artificial Intelligence (4)
- CSI 4140 - Deep Learning and Applications (4)
- CSI 4170 - Machine Learning (4)
- CSI 4180 - Natural Language Processing (4)
- CSI 4550 - Visual Computing (4)
- CSI 4810 - Information Retrieval and Knowledge Discovery (4)

Note

At least three of these courses must be taken at Oakland University. A minimum grade of C is required in each course for this minor. Students must obtain permission from the Department of Computer Science and Engineering in order to register for CSI courses at the 3000 and 4000 levels.

Computer Science Minor

The minor in computer science is suitable for students with a major in engineering, mathematics, physics, chemistry or biology, who may wish to emphasize numerical, scientific and engineering aspects of computing. Students must earn a minimum of 20 credits, including the following courses:

- CSI 1320 - Introduction to Python Programming and Unix (4) or CSI 1420 - Introduction to C Programming and Unix (4)
- CSI 2300 - Object-Oriented Computing (4)
- CSI 2310 - Data Structures (4)
- And minimum 8 credits of CSI courses numbered 2000 or above.

At least 12 of these credits must be taken at Oakland University. A minimum grade of C is required in each course for this minor. Students must obtain permission from the Department of Computer Science and Engineering in order to register for CSI courses at the 3000 and 4000 levels.

Information Technology Minor

The minor in information technology is suitable for students with a major in liberal arts or business, who may wish to emphasize non-numerical and symbolic data processing aspects of computing and information technology.

For an IT minor, students must earn a minimum of 20 credits in the following courses

- CSI 1200 - Introduction to Computing and Programming using Excel (4) or CSI 1210 - Problem Solving Using VBA and Excel (4)
- CSI 1300 - Introduction to Computer Programming (4) or CSI 1320 - Introduction to Python Programming and Unix (4)

and any three courses from

- CSI 1220 - Computer Animation (4)
- CSI 2300 - Object-Oriented Computing (4)
- CSI 2470 - Introduction to Computer Networks (4)
- CSI 3150 - Web and Mobile Systems (4)

At least 12 of these credits must be taken at Oakland University

An average GPA of 2.0 is required in courses counted toward this minor. Students must obtain permission from the Department of Computer Science and Engineering in order to register for CSI courses at the 3000 and higher levels.

Department of Electrical and Computer Engineering

The Department of Electrical and Computer Engineering carries out the mission of the School of Engineering and Computer Science by offering separate undergraduate majors in Electrical Engineering and in Computer Engineering. The department also offers masters programs in Electrical and Computer Engineering, Mechatronics Systems Engineering, and Embedded Systems, as well as a Ph.D. program in Electrical and Computer Engineering. The undergraduate programs in the Department of Electrical and Computer Engineering are accredited by the Computing Accreditation Commission of ABET.

Computer Engineering, B.S.E.

Major technological advances are being made in the computer field at a rapid pace, and it is essential that computer engineering students are not only aware of these advances but prepared to work in this changing environment. Students should gain a strong background in the fundamentals of computer engineering and develop a willingness to accept and thrive on change.

The computer engineering program at Oakland University is designed to provide students with the basic knowledge and skills needed to function effectively in computer-related activities in the years ahead. It is unique in offering a focus on embedded systems. A balance between theoretical and practical experience and an emphasis on the software and hardware aspects of computers are key elements to the university's computer engineering major. The BSE in Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET. To earn the degree of Bachelor of Science in Engineering with a major in computer engineering, students must complete a minimum of 129 credits and satisfy the writing requirements. They must meet the following requirements: (also see Undergraduate degree requirements)

Program educational objectives

The undergraduate program in Computer Engineering will provide educational experiences aimed toward producing graduates who will:

- Become successful practitioners in an engineering or related career.
- Pursue graduate study and/or continuing education opportunities in electrical engineering, computer engineering, or other related disciplines.

- Demonstrate leadership and excel in multi-disciplinary and multi-cultural environments.
- Function as responsible members of society with an awareness of the ethical and social ramifications of their work.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in computer engineering, B.S.E.

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below.

Foundations:

- Writing Foundations - WRT 1060
- Formal Reasoning (satisfied by MTH 1554; see Mathematics and sciences)

Explorations: One course from each of the seven Explorations areas:

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (satisfied by EGR 2400 or EGR 2500; see engineering core)
- Social Science (satisfied by ECN 1500, ECN 2010, or ECN 2020; see Additional Major Requirements)
- Western Civilization (satisfied by PHL 1310; see Additional Major Requirements)

Integration:

- Knowledge Applications (satisfied by MTH 1555 for engineering majors; see Mathematics and sciences)
- Capstone (satisfied by ECE 4999; see Required Professional Subjects)

U.S. Diversity:

- May be met by an approved course in the Explorations area

Writing Intensive:

- Writing Intensive in the Major (satisfied by ECE 4999; see Required Professional Subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements

All students must meet the following requirements. Courses from these selections can meet general education exploration areas above.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering
- Economics: Choose one from ECN 1500, ECN 2010, or ECN 2020

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and sciences

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- APM 2663 - Discrete Mathematics (4)
- CHM 1440 - General Chemistry I (4)
- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- PHY 1610 - Fundamentals of Physics I (4)
- PHY 1620 - Fundamentals of Physics II (4)
- Approved Math/Science Elective from list below (4)

Approved Math/Science Elective Options:

- APM 3332 - Applied Matrix Theory (4)
- APM 3557 - Elements Partial Differential Equations (4)
- APM 4333 - Numerical Methods (4)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- APM 4663 - Applied Mathematics: Discrete Methods I (4)
- APM 4777 - Computer Algebra (4)
- BIO 1200 - Biology I (4)

- BIO 1300 - Biology II (4)
- BIO 2100 - Human Anatomy (4)
- BIO 2600 - Human Physiology (4)
- BIO 3220 - Neurobiology (4)
- BIO 3400 - Genetics (4)
- BIO 4412 - Functional Genomics and Bioinformatics (4)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- MOR 2442 - Elementary Models in Operations Research (4)
- MTH 2554 - Multivariable Calculus (4)
- MTH 2775 - Linear Algebra (4)
- MTH 3552 - Complex Variables (4)
- PHY 3250 - Biological Physics (4)
- PHY 3260 - Medical Physics (4)
- PHY 3310 - Optics (4)
- PHY 3660 - Vibrations and Waves (4)
- PHY 3710 - Foundations of Modern Physics (4)
- Or others by approval by petition to the SECS Committee on Academic Standing.

Students must complete at least 30 credits in the required math/science area. Students with fewer than 30 credit hours of math/science, for example due to transfers from another institution, must take additional courses to satisfy this requirement. Additional courses in math/science must be from the approved Math/Science Elective Options listed above.

Engineering core

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)

Required professional subjects

- CSI 2290 - Introduction to Data Structures in C (4)

- ECE 2005 - Electric Circuits (4)
- ECE 2700 - Digital Logic Design (4)
- ECE 3100 - Electronic Circuits and Devices I (4)
- ECE 3204 - Signals and Systems (4)
- ECE 3720 - Microprocessors (4)
- ECE 4710 - Computer Hardware Design (4)
- ECE 4721 - Embedded Systems Design (4)
- ECE 4999 - Senior Design (4)

Professional electives

Professional elective courses can be selected from 3000, 4000, or 5000 level ECE, CSI, or approved mathematics and science electives; provided that the prerequisites of the courses are met. Professional electives from other SECS programs can be selected with prior approval of the Department of Electrical and Computer Engineering. Of the 12 professional elective credits, 4 credits must be selected from the Computers and Algorithms list, and at least 4 credits must be from a 4000 or 5000 level course. Professional electives at the 5000 level require an overall GPA of 3.0 or above. Prior approval of the chairperson of the Department of Electrical and Computer Engineering is required for ECE 4996 and ECE 4998. Co-ops/internships, and ECE 4731/5731 cannot be counted as professional electives in the Computer Engineering program.

Computers and Algorithms - choose at least one:

- CSI 3610 - Design and Analysis of Algorithms (4)
- CSI 3640 - Computer Organization (4)

Suggested electives:

High Performance Computing Area

- ECE 4772 - High Performance Embedded Programming (4)
- ECE 5760 - Embedded System Design with FPGAs (4)
- ECE 5770 - GPU Accelerated Computing (4)

Embedded AI Area

- CSI 4130 - Artificial Intelligence (4)
- CSI 4160 - Integrated Computing Systems (4)
- CSI 4110 - Foundations of Edge AI (4)
- ECE 4551 - Human Robot Interaction (4)
- ECE 4740 - Embedded Artificial Intelligence (AI) (4)

Embedded Security Area

- CSI 4580 - AI for Cybersecurity and Privacy (4)
- ECE 4710 - Computer Hardware Design (4)
- ECE 4780 - Embedded Security (4)

Microelectronics Area

- ECE 3105 - Electronic Circuits and Devices II (4)
- ECE 4130 - Electronic Materials and Devices (4)
- ECE 4132 - VLSIC Design of Digital Chips (4)
- ECE 4134 - Fundamentals of MEMS (4)

Mechatronics Area

- ECE 3600 - Electrical Machines (4)
- ECE 4400 - Automatic Control Systems (4)
- ECE 4415 - Microcomputer-based Control Systems (4)
- ECE 4520 - Automotive Mechatronics I (4)

Robotics Area

- ECE 4500 - Robotic Systems and Control (4)
- ECE 4510 - Machine Vision (4)
- ECE 4551 - Human Robot Interaction (4)

Major standing

To enroll in 3000- or higher-level courses and to become candidates for the degree of Bachelor of Science in Engineering with a major in Computer Engineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher-level courses. Students can obtain the major standing form from the SECS Undergraduate Advising website. At the time that major standing is approved, students with majors of Pre-Computer Engineering will have their major changed to Computer Engineering. Approval of both a major standing application and change of major to Computer Engineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Computer Engineering, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, APM 2555, CHM 1440, PHY 1610, and PHY 1620;

B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600, EGR 2800;

C) have no more than two grades below C in the required courses listed in A and B above;

D) have not attempted any course listed in A and B above more than three times; and

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a GPA of at least 2.0 within each course group: mathematics and sciences, engineering core, and professional courses (including required professional subjects and professional electives) and a grade of C or better in the senior design capstone course (ECE 4999). Within professional courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three repeat attempts per course are permitted.

Sample computer engineering schedule

Students entering the School of Engineering and Computer Science with the required background may follow a schedule such as the one indicated below. However, students will need additional time to complete the program if they do not have the required background upon entrance to the program.

Freshman year

Fall semester -- 17 credits

- CHM 1440 - General Chemistry I (4)
- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- MTH 1554 - Calculus I (4)
- WRT or General Education (4)

Winter semester -- 16 credits

- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- MTH 1555 - Calculus II (4)
- PHY 1610 - Fundamentals of Physics I (4)
- General Education (4)

Sophomore year

Fall semester -- 16 credits

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- CSI 2290 - Introduction to Data Structures in C (4)

- EGR 2500 - Introduction to Thermal Engineering (4)
- PHY 1620 - Fundamentals of Physics II (4)

Winter semester -- 16 credits

- ECE 2700 - Digital Logic Design (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)
- General Education (4)

Junior year

Fall semester -- 16 credits

- ECE 2005 - Electric Circuits (4)
- ECE 3720 - Microprocessors (4)
- ECE 4710 - Computer Hardware Design (4)
- General Education (4)

Winter semester -- 16 credits

- APM 2663 - Discrete Mathematics (4)
- ECE 3100 - Electronic Circuits and Devices I (4)
- ECE 4721 - Embedded Systems Design (4)
- General Education (4)

Senior year

Fall semester -- 16 credits

- CSI 3610 - Design and Analysis of Algorithms (4) or CSI 3640 - Computer Organization (4)
- ECE 3204 - Signals and Systems (4)
- Professional elective (4)
- General Education (4)

Winter semester -- 16 credits

- ECE 4999 - Senior Design (4)
- Professional elective (4)
- General Education (4)
- Mathematics and Sciences elective (4)

Electrical Engineering, B.S.E.

Electrical engineering is a broad field encompassing a number of disciplines. Oakland University's undergraduate program in electrical engineering is designed to provide students with the basic knowledge and skills for challenging careers in electrical engineering in the coming decades. The curriculum offers strong fundamentals in analog and digital circuits, communications, computers, controls, electromagnetics, electronics including VLSI systems, electronic devices, and power systems. In addition, a strong laboratory component of the program offers numerous design opportunities and allows students to relate theoretical ideas to practical problems using modern equipment and hardware/software tools. The program also provides numerous engineering design experiences. Electrical and computer engineering faculty members are engaged in research related to new developments in the field. Their activities contribute to a well-developed, up-to-date curriculum. The BSE in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET. To earn the degree of Bachelor of Science in Engineering with a major in electrical engineering, students must complete a minimum of 129 credits, demonstrate writing proficiency (see Undergraduate degree requirements) and meet the following requirements:

Program educational objectives

The undergraduate program in Electrical Engineering will provide educational experiences aimed toward producing graduates who will:

- Become successful practitioners in an engineering or related career.
- Pursue graduate study and/or continuing education opportunities in electrical engineering, computer engineering, or other related disciplines.
- Demonstrate leadership and excel in multidisciplinary and multicultural environments.
- Function as responsible members of society with an awareness of the ethical and social ramifications of their work.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in electrical engineering, B.S.E. program

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both

general education and other program requirements, in some of the general education areas students should select from the courses listed below.

Foundations:

- Writing Foundations - WRT 1060
- Formal Reasoning (Satisfied by MTH 1554 for engineering majors; see Mathematics and sciences)

Explorations: One course from each of the seven Explorations areas:

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (satisfied by EGR 2400 or EGR 2500; see engineering core)
- Social Science (satisfied by ECN 1500, ECN 2010, or ECN 2020; see Additional Major Requirements)
- Western Civilization (satisfied by PHL 1310; see Additional Major Requirements)

Integration:

- Knowledge Applications (satisfied by MTH 1555 for engineering majors; see Mathematics and sciences)
- Capstone (satisfied by ECE 4999; see Required Professional Subjects)

U.S. Diversity:

- May be met by an approved course in the Explorations area

Writing Intensive:

- Writing Intensive in the Major (satisfied by ECE 4999; see Required Professional Subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements:

All students must meet the following requirements. Courses from these selections can meet general education exploration areas above,

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering
- Economics: Choose one from ECN 1500, ECN 2010, or ECN 2020

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and sciences

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- CHM 1440 - General Chemistry I (4)
- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- MTH 2554 - Multivariable Calculus (4)
- PHY 1610 - Fundamentals of Physics I (4)
- PHY 1620 - Fundamentals of Physics II (4)
- Approved Math/Science Elective from list below (4)

Approved Math/Science Elective Options:

Students majoring in Electrical Engineering are advised to take MTH 2775 to broaden their knowledge of Linear Algebra. However, students who have an explicit interest in broadening their knowledge in another area of math or science should select an elective from the following approved course list:

- APM 2663 - Discrete Mathematics (4)
- APM 3332 - Applied Matrix Theory (4)
- APM 3557 - Elements Partial Differential Equations (4)
- APM 4333 - Numerical Methods (4)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- APM 4555 - Intermediate Ordinary Differential Equations (4)
- APM 4663 - Applied Mathematics: Discrete Methods I (4)
- APM 4777 - Computer Algebra (4)
- BIO 1200 - Biology I (4)
- BIO 1300 - Biology II (4)
- BIO 2100 - Human Anatomy (4)
- BIO 2600 - Human Physiology (4)
- BIO 3220 - Neurobiology (4)
- BIO 3400 - Genetics (4)

- BIO 4412 - Functional Genomics and Bioinformatics (4)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- MTH 3552 - Complex Variables (4)
- PHY 3250 - Biological Physics (4)
- PHY 3260 - Medical Physics (4)
- PHY 3310 - Optics (4)
- PHY 3610 - Mechanics I (4)
- PHY 3660 - Vibrations and Waves (4)
- PHY 3710 - Foundations of Modern Physics (4)
- PHY 4310 - Lasers and Applications (4)
- or others by approval by petition to the SECS Committee on Academic Standing.

Students must complete at least 30 credits in the required math/science area. Students with fewer than 30 credit hours of math/science, for example due to transfers from another institution, must take additional courses to satisfy this requirement. Additional courses in math/science must be from the approved Math/Science Elective Options listed above.

Engineering core

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)

Required professional subjects

- ECE 2005 - Electric Circuits (4)
- ECE 2700 - Digital Logic Design (4)
- ECE 3100 - Electronic Circuits and Devices I (4)
- ECE 3105 - Electronic Circuits and Devices II (4)
- ECE 3204 - Signals and Systems (4)
- ECE 3300 - Electromagnetics I (4)
- ECE 3600 - Electrical Machines (4)

- ECE 4999 - Senior Design (4)

Professional electives

From the depth areas below students must complete two Key courses, one elective under one of the key courses, and one additional elective chosen from any 4000 level ECE course, except for ECE 4731/5731. Students with an overall GPA of 3.0 or greater may select one elective from ECE 5000 or SYS 5000 level courses. Prior approval of the chairperson of the Department of Electrical and Computer Engineering is required for ECE 4996 and ECE 4998. The professional depth areas are:

1. Communications

Key course:

- ECE 4210 - Communication Systems (4)

Electives:

- ECE 4220 - Fundamentals of Digital Signal Processing (4)
- ECE 4230 - Satellite-based Positioning System (4)

2. Computer Engineering

Key course:

- ECE 3720 - Microprocessors (4)

Electives:

- ECE 4710 - Computer Hardware Design (4)
- ECE 4721 - Embedded Systems Design (4)
- ECE 4772 - High Performance Embedded Programming (4)

3. Control systems

Key course:

- ECE 4400 - Automatic Control Systems (4)

Electives:

- ECE 4410 - Digital Control Systems (4)
- ECE 4415 - Microcomputer-based Control Systems (4)

4. Electromagnetics

Key course:

- ECE 4305 - Electromagnetics II (4)

Electives:

- ECE 4310 - Antennas (4)
- ECE 4320 - Electromagnetic Compatibility (4)

5. Electronics

Key course:

- ECE 4130 - Electronic Materials and Devices (4)

Electives:

- ECE 4132 - VLSIC Design of Digital Chips (4)
- ECE 4134 - Fundamentals of MEMS (4)
- ECE 4135 - Microelectronic Fabrication Technologies (4)

6. Robotics

Key course:

- ECE 4500 - Robotic Systems and Control (4)

Electives:

- ECE 4510 - Machine Vision (4)
- ECE 4520 - Automotive Mechatronics I (4)
- ECE 4551 - Human Robot Interaction (4)

7. Power systems

Key course:

- ECE 4610 - Introduction to Power Electronics (4)

Electives:

- ECE 4620 - Electrical Energy Systems (4)
- ECE 4630 - Electric and Hybrid Drive Systems (4)

Major standing

To enroll in 3000- or higher-level courses and to become candidates for the degree of Bachelor of Science with a major in Electrical Engineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher-level courses. Forms may be obtained from the SECS Undergraduate Advising Office or from the SECS website. At the time that major standing is approved, students with majors of Pre-Electrical Engineering will have their major changed to Electrical Engineering. Approval of both a major standing application

and change of major to Electrical Engineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Electrical Engineering, students must:

- A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, APM 2555, CHM 1440, PHY 1610 and PHY 1620;
- B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600, EGR 2800;
- C) have no more than two grades below C in the required courses listed in A and B above;
- D) have not attempted any course listed in A and B above more than three times; and
- E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a GPA of at least 2.0 within each course group: mathematics and sciences, engineering core, and professional courses (including required professional subjects and professional electives) and a grade of C or better in the senior design capstone course (ECE 4999). Within professional courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three attempts per course are permitted.

Sample electrical engineering program schedule

Students entering the School of Engineering and Computer Science with the required background may follow a schedule such as the one indicated below. However, students will need additional time to complete the program if they do not have the required background upon entrance to the program.

Freshman year

Fall semester -- 17 credits

- CHM 1440 - General Chemistry I (4)
- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- MTH 1554 - Calculus I (4)
- WRT or General Education (4)

Winter semester -- 16 credits

- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- MTH 1555 - Calculus II (4)

- PHY 1610 - Fundamentals of Physics I (4)
- General Education (4)

Sophomore year

Fall semester -- 16 credits

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- ECE 2005 - Electric Circuits (4)
- PHY 1620 - Fundamentals of Physics II (4)
- General Education (4)

Winter semester -- 16 credits

- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)
- General Education (4)

Junior year

Fall semester -- 16 credits

- ECE 3100 - Electronic Circuits and Devices I (4)
- ECE 3204 - Signals and Systems (4)
- MTH 2554 - Multivariable Calculus (4)
- General Education (4)

Winter semester -- 16 credits

- ECE 2700 - Digital Logic Design (4)
- ECE 3105 - Electronic Circuits and Devices II (4)
- ECE 3300 - Electromagnetics I (4)
- ECE 3600 - Electrical Machines (4)

Senior year

Fall semester -- 16 credits

- Key course-area 1 (4)
- Key course-area 2 (4)
- Mathematics and Sciences elective (4)

- General Education (4)

Winter semester -- 16 credits

- Elective-area 1 (4)
- ECE Elective (4)
- ECE 4999 - Senior Design (4)
- General education (4)

Department of Industrial and Systems Engineering

Mission

The Department of Industrial and Systems Engineering carries out the mission of the School of Engineering and Computer Science by offering:

- an undergraduate major in Industrial and Systems Engineering;
- a master's degree program in Industrial and Systems Engineering;
- a master's degree program in Engineering Management with the cooperation of the School of Business Administration;
- a master's degree program in Systems Engineering;
- a graduate certificate program in Productivity Improvement.

Also, the department actively participates in the school-wide Ph.D. program in Systems Engineering.

Accreditation

The undergraduate program in the Industrial and Systems Engineering Department is accredited both in Industrial Engineering and in Systems Engineering by the Engineering Accreditation Commission of ABET.

Industrial and Systems Engineering, B.S.E.

The profession of Industrial and Systems Engineering offers the widest range of choices in technical areas and career options. Other engineering disciplines apply skills to very specific areas. Industrial and Systems Engineering gives you the opportunity to work in a variety of businesses. Whether it is distributing products worldwide, manufacturing superior automobiles, or streamlining the procedures in an operating room, all of these situations share the common goal of increasing efficiencies and saving companies money. The most distinctive aspect of Industrial and Systems Engineering is the career and job flexibility it offers and the faster pathway to leadership positions it provides. Industrial and Systems

Engineers work in various industries including automotive, energy, healthcare, advanced and digital manufacturing, defense, logistics, service, aerospace, entertainment and others.

In order to earn the degree of Bachelor of Science in Engineering with a major in industrial and systems engineering, students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

The educational objectives of the Industrial and Systems Engineering B.S.E. program are to produce graduates who will:

- design, develop, implement, sustain and improve systems which integrate people, materials, equipment, information and energy;
- operate effectively in dynamic and diverse organizations;
- demonstrate a professional attitude, integrity and commitment to life-long learning in their work.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in industrial and systems engineering, B.S.E. program

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below:

Foundations:

- Writing Foundations - WRT 1060
- Formal Reasoning - (Satisfied by MTH 1554; see Mathematics and Sciences)

Explorations: One course from each of the seven Explorations areas

- Arts
- Language and Culture
- Global Perspective
- Literature

- Natural Science and Technology - (Satisfied by EGR 2400 or EGR 2500; see Engineering Core)
- Social Science - (Satisfied by ECN 1500, ECN 2010, or ECN 2020; see Major corequisites. Additional Major Requirements)
- Western Civilization - (Satisfied by PHL 1310 - Introduction to Ethics in Science and Engineering; see Additional Major Requirements. However, if an ISE major takes ISE 4421 - Leadership Principles and Positive Engagement, then they may take any Western Civilization course); see Major corequisites.

Integration:

- Knowledge Applications -Satisfied by MTH 1555; see Mathematics and sciences
- Capstone (Satisfied by ISE 4491; see Required professional courses)

U.S. Diversity:

- May be met by an approved course in the Explorations area.

Writing Intensive and Capstone:

- Capstone (Satisfied by ISE 4491; see Required professional courses)
- Writing Intensive in the Major (Satisfied by ISE 4491; see Required professional subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

* In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with a SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Additional Major Requirements

All students must meet the following requirements. Some courses from these selections also satisfy general education exploration areas above.

- Professional Ethics: Choose one from PHL 1310 - Introduction to Ethics in Science and Engineering or ISE 4421 - Leadership Principles and Positive Engagement
- Economics: Choose one from ECN 1500, ECN 2010 or ECN 2020

Mathematics and Sciences

- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4) (or [APM 2559 (4) and MTH 2775 (4)])
- APM 2663 - Discrete Mathematics (4) or MTH 2554 - Multivariable Calculus (4)

- CHM 1440 - General Chemistry I (4)
- PHY 1610 - Fundamentals of Physics I (4)
- PHY 1620 - Fundamentals of Physics II (4)
- Approved Math/Science Elective from list below (4)

Approved Math/Science Elective Options

Students who complete APM 2559 and MTH 2775 instead of APM 2555 above are not permitted to use MTH 2775 toward the elective requirement. It is recommended that students discuss their educational and career interests with an ISE Dept. faculty member or a SECS Undergraduate Academic Adviser prior to selecting this course:

- APM 2663 - Discrete Mathematics (4)
- APM 3332 - Applied Matrix Theory (4)
- APM 3557 - Elements Partial Differential Equations (4)
- APM 4333 - Numerical Methods (4)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- APM 4663 - Applied Mathematics: Discrete Methods I (4)
- APM 4777 - Computer Algebra (4)
- BIO 1200 - Biology I (4)
- BIO 1300 - Biology II (4)
- BIO 2100 - Human Anatomy (4)
- BIO 2600 - Human Physiology (4)
- BIO 3400 - Genetics (4)
- MTH 2554 - Multivariable Calculus (4)
- MTH 2775 - Linear Algebra (4)
- MTH 3552 - Complex Variables (4)
- PHY 3250 - Biological Physics (4)
- PHY 3260 - Medical Physics (4)
- STA 4002 - Applied Linear Models I (4)
- Other math or science course with approval by written petition to the SECS Committee on Academic Standing. Please contact a SECS Undergraduate Academic Adviser for more information.

Students must complete at least 30 credits in the required math/science area. Students with fewer than 30 credit hours of math/science, for example due to transfers from another institution, must take additional courses to satisfy this requirement. Additional courses in math/science must be from the approved departmental list or by petition of exception.

Engineering core subjects

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)

Required professional subjects

- ISE 3318 - Engineering Statistics and Economic Analysis (4)
- ISE 3330 - Engineering Operations Research (3)
- ISE 3341 - Ergonomics and Work Design (4)
- ISE 4469 - Computer Simulation of Discrete Event Systems (4)
- ISE 4483 - Production Systems and Workflow Analysis (4)
- ISE 4484 - Flexible and Lean Manufacturing Systems (4)
- ISE 4485 - Statistical Quality Analysis (4)
- ISE 4487 - Foundations of Systems Engineering (4)
- ISE 4491 - Senior Design (4)

Professional electives

Students must complete 12 credits of professional electives. At least 8 of the 12 credits must be from Group A. The remaining 4 credits can be from Group A or Group B.

Group A

- ISE 4410 - Supply Chain Modeling and Analysis (4)
- ISE 4421 - Leadership Principles and Positive Engagement (4)
- ISE 4422 - Robotic Systems (4)
- ISE 4423 - Industrial Automation Systems (4)
- ISE 4431 - Engineering Operations Research - Stochastic Models (4)

- ISE 4434 - Metamodeling and Optimization Methods in Design (4)
- ISE 4435 - Data Analytics (4)
- ISE 4441 - Human Factors Engineering (4)
- ISE 4450 - Fundamentals of Energy Management (4)
- ISE 4455 - Foundations of Safety Engineering (4)
- ISE 4456 - Engineering Risk Analysis (4)
- ISE 4461 - PLM Applications - Product Data Management (2)
- ISE 4462 - PLM Applications- Robotic Systems (2)
- ISE 4463 - PLM Applications - Ergonomics (2)
- ISE 4464 - Design for Manufacturing and Assembly Analysis (4)
- ISE 4466 - PLM Applications - Change Management (2)
- ISE 4467 - PLM Applications - Throughput Simulation (2)
- ISE 4480 - E-Commerce and ERP (4)
- ISE 4482 - Engineering Processes Decisions Using ERP (4)
- ISE 4488 - Advanced Systems Engineering (4)
- ISE 4900 - Special Topics (2 TO 4)
- ME 4700 - Manufacturing Processes (4)
- Any new ISE 4000-level courses listed in subsequent catalogs (2 TO 4)

Group B

- ISE 4996 - Independent Study (2 TO 4) *
- ISE 4998 - Senior Project (2 TO 4) *
- ME 3700 - Properties of Materials (4)
- HRD 4600 - Lean Kaizen in Organizations (4)

* This course cannot be taken without prior written permission from the Chairperson of the Industrial and Systems Engineering Department.

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science in Engineering with a major in Industrial and Systems Engineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Forms may be obtained from the SECS Undergraduate advising office or from

the SECS website. At the time that major standing is approved, students with majors of Pre-Industrial and Systems Engineering will have their major changed to Industrial and Systems Engineering. Approval of both a major standing application and change of major to Industrial and Systems Engineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Industrial and Systems Engineering, students must:

A. have an average GPA of at least 2.0 in the following mathematics and sciences courses: MTH 1554, MTH 1555, APM 2555, CHM 1440, PHY 1610, PHY 1620.

B. have an average GPA of at least 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600, EGR 2800.

C. have no more than two grades below C in the courses listed in A and B above;

D. have not attempted any course listed in A and B above more than three times.

E. have not repeated more than three different courses listed in A and B above. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted for the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a grade-point average of at least a 2.0 within each of the following groups of courses: mathematics and sciences courses; engineering core courses; and professional courses (all required professional subjects and professional electives) and a grade of C or better in the senior design capstone course (ISE 4991).

Within the professional courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three attempts per course is permitted.

General business minor

Students may wish to augment their degree with a minor in general business. This may be done by completing 19-23 credits specified by the School of Business Administration (see Minors section in School of Business Administration portion of this catalog). Credits from the minor may be used to satisfy the social science general education requirement and the economics requirement.

Sample industrial and systems engineering schedule

Industrial and systems engineering students with the required background may follow a schedule such as the one below. However, students will need additional time to complete the program if they do not have the required background upon entrance to the program. All students should contact the SECS Undergraduate Advising Office before completing their schedule.

Freshman year

Fall semester - 16 credits

- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)

- MTH 1554 - Calculus I (4)
- CHM 1440 - General Chemistry I (4)
- General education course (4)

Winter semester - 17 credits

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- MTH 1555 - Calculus II (4)
- PHY 1610 - Fundamentals of Physics I (4)
- General education course (4)

Sophomore year

Fall semester - 16 credits

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- PHY 1620 - Fundamentals of Physics II (4)
- General education course (4)

Winter semester - 16 credits

- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)
- APM 2663 - Discrete Mathematics (4) or MTH 2554 - Multivariable Calculus (4)
- General education course (4)

Junior year

Fall semester - 16 credits

- ISE 3318 - Engineering Statistics and Economic Analysis (4)
- ISE 3341 - Ergonomics and Work Design (4)
- General education course (4)
- Math or science elective course (4)

Winter semester - 15 credits

- ISE 3330 - Engineering Operations Research (3)
- ISE 4469 - Computer Simulation of Discrete Event Systems (4)

- ISE 4484 - Flexible and Lean Manufacturing Systems (4)
- General education course (4)

Senior year

Fall semester - 16 credits

- ISE 4483 - Production Systems and Workflow Analysis (4)
- Professional elective course(s) (one 4 credits or two 2 credits)
- Professional elective course(s) (one 4 credits or two 2 credits)
- General education course (4)

Winter semester - 16 credits

- ISE 4485 - Statistical Quality Analysis (4)
- ISE 4487 - Foundations of Systems Engineering (4)
- ISE 4491 - Senior Design (4)
- Professional elective course(s) (one 4 credits or two 2 credits)

Department of Mechanical Engineering

The Department of Mechanical Engineering carries out the mission of the School of Engineering and Computer Science by offering undergraduate majors in mechanical engineering including various depth areas and specializations. The department also offers master's and Ph.D. programs in mechanical engineering and a Ph.D. program in mechanical engineering. The Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

Mechanical Engineering, B.S.E.

The field of mechanical engineering offers career opportunities in areas such as design, analysis, test development, research and the manufacturing of various products. Oakland University's mechanical engineering program provides students with a foundation in the fundamental concepts and principles associated with mechanics of solids, thermodynamics, fluid and thermal energy, materials, manufacturing, design of mechanical systems, electrical circuits, computer programming and software utilization. A strong laboratory experience and the utilization of instrumentation and computer simulation tools are interwoven through the curriculum. The program also provides numerous engineering design experiences. The BSE in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET. In order to earn the degree of Bachelor of Science in

Engineering with a major in mechanical engineering, students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

- The objectives of the Mechanical Engineering program are to produce graduates, who three to five years after graduation, will:
- function successfully in engineering roles within the automotive and other global industries,
- engage in lifelong learning and pursue graduate study in mechanical engineering or other post-graduate education,
- contribute effectively and ethically to a modern, multidisciplinary workplace, and
- demonstrate effective communication, problem-solving and teamwork skills.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in mechanical engineering, B.S.E.

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below:

Foundations:

- Writing Foundations - WRT 1060
- Formal Reasoning (satisfied by MTH 1554; see Mathematics and Sciences)

Explorations: One course from each of the seven Explorations areas:

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (satisfied by EGR 2400 or EGR 2500; see Engineering Core)

- Social Science (satisfied by ECN 1500, ECN 2010 or ECN 2020; see Additional Major Requirements)
- Western Civilization (satisfied by PHL 1310; see Additional Major Requirements)

Integration:

- Knowledge Applications (satisfied by MTH 1555; see Mathematics and Sciences)
- Capstone (satisfied by ME 4999; see Required Professional Subjects)

U.S. Diversity:

- May be met by an approved course in the Explorations area

Writing Intensive:

- Writing Intensive in the Major (satisfied by ME 4999; see Required Professional Subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements:

All mechanical engineering students must meet the following requirements. Courses from these selections can meet general education exploration areas above.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering
- Economics: Choose one from ECN 1500, ECN 2010 or ECN 2020

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and Sciences

Students must complete at least 30 credits in the required math/science area. Students with fewer than 30 credit hours of math/science, for example due to transfers from another institution, must take additional courses to satisfy this requirement. Additional courses in math/science must be from the approved departmental list or by petition of exception.

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- CHM 1440 - General Chemistry I (4)
- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- MTH 2554 - Multivariable Calculus (4)
- PHY 1610 - Fundamentals of Physics I (4) or PHY 1510 - Introductory Physics I (4)
- PHY 1620 - Fundamentals of Physics II (4) or PHY 1520 - Introductory Physics II (4)

- Approved Math/Science Elective from list below (4)

Approved Math/Science Elective Options

Students majoring in mechanical engineering are advised to take MTH 2775 to broaden their knowledge of linear algebra. However, students who have an explicit interest in broadening their knowledge in a specific area of math or science should select an elective from the following approved course list:

- APM 3332 - Applied Matrix Theory (4)
- APM 3557 - Elements Partial Differential Equations (4)
- APM 4333 - Numerical Methods (4)
- APM 4334 - Applied Numerical Methods: Matrix Methods (4)
- BIO 1200 - Biology I (4)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)
- MTH 2775 - Linear Algebra (4)
- MTH 3552 - Complex Variables (4)
- PHY 3250 - Biological Physics (4)
- PHY 3310 - Optics (4)
- PHY 3660 - Vibrations and Waves (4)
- PHY 3710 - Foundations of Modern Physics (4)
- Other courses approved by petition to the SECS Committee on Academic Standing.

Engineering Core

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)

Required Professional Subjects

- ME 3200 - Engineering Mechanics (4)
- ME 3250 - Mechanics of Materials (4)
- ME 3300 - Computer-Aided Design (3)

- ME 3500 - Introduction to Fluid and Thermal Energy Transport (4)
- ME 3700 - Properties of Materials (4)
- ME 4200 - Vibrations and Controls (4)
- ME 4300 - Mechanical Systems Design (4)
- ME 4500 - Energy Systems Analysis and Design (4)
- ME 4999 - Senior Mechanical Engineering Design Project (4) or ME 4998 - Senior Project (4)*

Note

*ME 4998 requires approval of project proposal by the Mechanical Engineering Department. If taken in place of ME 4999, it must be team-based.

Professional Electives

Mechanical engineering students must complete at least 12 additional credits of 4000- or 5000-level ME, BE, ISE, or ECE designated courses (must have instructor's permission to take 5000-level courses). At least 8 of these credits must have an ME designation. Students interested in broadening their knowledge in a specific area of mechanical engineering should elect sequences of courses as described in the specialized professional depth areas listed below:

1. Energy, Fluid and Thermal Systems depth area. Includes courses in the fluid and thermal energy transport area.

Recommended fundamental subjects

- ME 4510 - Intermediate Fluid Mechanics (4)
- ME 4520 - Intermediate Heat Transfer (4)

Other relevant courses

- ME 4530 - Alternative Energy Systems (4)
- ME 4535 - Introduction to Electric Drive Vehicle Engineering (4)
- ME 4540 - Internal Combustion Engines I (4)
- ME 4550 - Fluid and Thermal Systems Design (4)

2. Computer-Aided Design depth area. Includes courses in the computer-aided design (CAD) and analysis area.

Recommended fundamental subjects

- ME 4350 - Mechanical Computer-Aided Engineering (4)
- ME 4360 - Mechanical Computer-Aided Manufacturing (4)

3. Automotive Engineering depth area. Includes courses with an automotive engineering emphasis area with two possible areas of specialty: automotive structures or internal combustion engines.

Recommended fundamental subjects: Automotive Structures Specialty

- ME 4210 - Analysis and Design of Mechanical Structures (4)
- ME 4220 - Vehicle Dynamics (4)

Recommended fundamental subjects: Internal Combustion Engines Specialty

- ME 4540 - Internal Combustion Engines I (4)

Other relevant courses

- ME 4230 - Automotive Driveline Dynamics (4)
- ME 4260 - Acoustics and Noise Control (4)
- ME 4510 - Intermediate Fluid Mechanics (4)
- ME 4520 - Intermediate Heat Transfer (4)
- ME 4535 - Introduction to Electric Drive Vehicle Engineering (4)
- ME 4750 - Optical Measurement and Quality Inspection (4)
- ME 4350 - Mechanical Computer-Aided Engineering (4)
- ME 4730 - Fasteners and Bolted Joints (4)
- ECE 4400 - Automatic Control Systems (4)
- ECE 4110 - Automotive Electronics (4)
- ECE 4520 - Automotive Mechatronics I (4)

4. Manufacturing Engineering depth area. This depth area includes courses in the manufacturing area.

Recommended fundamental subjects

- ME 4600 - Materials Properties and Processes (4)
- ME 4700 - Manufacturing Processes (4)

Other relevant courses

- ME 4710 - Flexible and Lean Manufacturing Systems (4)
- ME 4750 - Optical Measurement and Quality Inspection (4)
- ME 4740 - Robotic Systems (4)
- ME 4360 - Mechanical Computer-Aided Manufacturing (4)
- ECE 4400 - Automatic Control Systems (4)
- ISE 4485 - Statistical Quality Analysis (4)

5. Materials Engineering depth area. This depth area includes courses in the areas of basic and advanced materials, plastics and composites manufacturing

Recommended fundamental subjects

- ME 4610 - Polymeric Materials (4)
- ME 4600 - Materials Properties and Processes (4)
- ME 5530 - Plastics Processing Engineering (4)

6. Nuclear Engineering depth area. This depth area includes courses in the nuclear engineering area.

Required fundamental subjects

- ME 4520 - Intermediate Heat Transfer (4)
- ME 4580 - Fundamentals of Nuclear Engineering (3)
- ME 4585 - Nuclear Reactors and Power Plants (3)
- PHY 3180 - Nuclear Physics Laboratory (2) (PHY 3180 (2) requires ME 4580 (3) as a pre or co-requisite)

Optional Specializations:

The Mechanical Engineering Department offers optional specializations in Automotive Engineering, Manufacturing, and Energy to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of specialization in their degree. Specializations are available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each specialization are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a specialization may require more than 128 credits. Students may earn only one specialization and the specialization must be completed as part of their degree. The specialization will be noted on the students' transcript and diploma.

1. Automotive Engineering Specialization

The Automotive Engineering Specialization includes courses related to powertrain, vehicle dynamics, as well as systems integration as they relate to vehicle design. To earn a Bachelor of Science degree in Mechanical Engineering with a specialization in Automotive Engineering, students must complete the following sequence of courses to satisfy their professional electives requirement. Please note that completing this specialization may require more than 128 credits.

See adviser for complete details on specialization.

Required fundamental subjects - 12 credits

- ME 4220 - Vehicle Dynamics (4)
- ME 4350 - Mechanical Computer-Aided Engineering (4)

- ME 4540 - Internal Combustion Engines I (4)

Select at least 4 credits from the following:

- ME 4230 - Automotive Driveline Dynamics (4)
- ME 4260 - Acoustics and Noise Control (4)
- ME 4510 - Intermediate Fluid Mechanics (4)
- ME 4535 - Introduction to Electric Drive Vehicle Engineering (4)
- ME 4630 - Lubrication, Friction, and Wear (4)
- ME 4803 - PREP III: Powertrain Readiness Engineering Program (2)
- ME 4804 - PREP IV: Powertrain Readiness Engineering Program (2)
- ME 4900 - Special Topics (2 TO 4) with prior approval
- ME 5900 - Special Topics (2 TO 4) with prior approval
- ME 5560 - Combustion processes (4)
- ECE 4110 - Automotive Electronics (4)
- ECE 4520 - Automotive Mechatronics I (4)

2. Manufacturing Specialization

The Manufacturing Specialization includes courses related to manufacturing processes for metals and plastics as well as manufacturing systems. To earn a Bachelor of Science degree in Mechanical Engineering with a specialization in Manufacturing, students must complete the following sequence of courses to satisfy their professional electives requirement. Please note that completing this specialization may require more than 128 credits.

See adviser for complete details on specialization.

Required fundamental subjects - 12 credits

- ME 4360 - Mechanical Computer-Aided Manufacturing (4)
- ME 4600 - Materials Properties and Processes (4)
- ME 4700 - Manufacturing Processes (4)

Select at least 4 credits from the following:

- ME 4710 - Flexible and Lean Manufacturing Systems (4)
- ME 4740 - Robotic Systems (4)
- ME 4750 - Optical Measurement and Quality Inspection (4)
- ME 4900 - Special Topics (2 TO 4) with prior approval

- ME 5900 - Special Topics (2 TO 4) with prior approval
- ME 5700 - Polymer Processing (4)
- ECE 4400 - Automatic Control Systems (4)
- ISE 4485 - Statistical Quality Analysis (4)

3. Energy Specialization

The Energy Specialization includes fundamental courses in energy systems as well as fundamental courses in the fluid and thermal sciences. To earn a Bachelor of Science degree in Mechanical Engineering with a specialization in Energy, students must complete the following sequence of courses to satisfy their professional electives requirement. Please note that completing this specialization may require more than 128 credits.

See adviser for complete details on specialization.

Required fundamental subjects - 8 credits

- ME 4510 - Intermediate Fluid Mechanics (4) or ME 4520 - Intermediate Heat Transfer (4)
- ME 4530 - Alternative Energy Systems (4)

Select at least 8 credits from the following:

- ME 4510 - Intermediate Fluid Mechanics (4) if not taken as a required fundamental subject
- ME 4520 - Intermediate Heat Transfer (4) if not taken as a required fundamental subject
- ME 4535 - Introduction to Electric Drive Vehicle Engineering (4)
- ME 4540 - Internal Combustion Engines I (4)
- ME 4550 - Fluid and Thermal Systems Design (4)
- ME 4580 - Fundamentals of Nuclear Engineering (3)
- ME 4585 - Nuclear Reactors and Power Plants (3)
- ME 4900 - Special Topics (2 TO 4) with prior approval
- ME 4996 - Independent Study (1 TO 4) with prior approval
- ME 5900 - Special Topics (2 TO 4) with prior approval
- ME 5560 - Combustion Processes (4)
- PHY 3180 - Nuclear Physics Laboratory (2) (requires ME 4580 (3) as a pre- or co-requisite)

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science in Engineering with a major in Mechanical Engineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level

courses. Students can obtain the major standing form from the SECS Undergraduate Advising Website. At the time that major standing is approved, students with majors of Pre-Mechanical Engineering will have their major changed to Mechanical Engineering. Approval of both a major standing application and change of major to Mechanical Engineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Mechanical Engineering, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, APM 2555, CHM 1440, PHY 1610 (or PHY 1510), PHY 1620 (or PHY 1520);

B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600, EGR 2800. Note that some mechanical engineering courses require a minimum grade of C in EGR 2500 or EGR 2800;

C) have no more than two grades below C in the required courses in A and B above;

D) have not attempted any course listed in A and B above more than three times; and

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a GPA of at least 2.0 within each course group: mathematics and sciences, engineering core, and professional courses (including required professional subjects and professional electives) and a grade of C or better in the senior design capstone course (ME 4999 or ME 4998). Within professional courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three repeat attempts per course are permitted.

Sample mechanical engineering schedule

Students entering the School of Engineering and Computer Science with the required background may follow a schedule such as the one indicated below. However, students will need additional time to complete the program if they do not have the required background upon entrance to the program.

Freshman year

Fall semester -- 17 total credits

- CHM 1440 - General Chemistry I (4)
- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- MTH 1554 - Calculus I (4)
- General Education (4)

Winter semester -- 16 total credits

- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- MTH 1555 - Calculus II (4)
- PHY 1610 - Fundamentals of Physics I (4)
- General Education (4)

Sophomore year

Fall semester -- 16 total credits

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- PHY 1620 - Fundamentals of Physics II (4)
- General Education (4)

Winter semester -- 16 total credits

- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)
- MTH 2554 - Multivariable Calculus (4)
- General Education (4)

Junior year

Fall semester -- 16 total credits

- ME 3200 - Engineering Mechanics (4)
- ME 3500 - Introduction to Fluid and Thermal Energy Transport (4)
- ME 3700 - Properties of Materials (4)
- General Education (4)

Winter semester -- 15 total credits

- ME 3250 - Mechanics of Materials (4)
- ME 3300 - Computer-Aided Design (3)
- Professional Elective (4)
- Approved Math/Science elective (4)

Senior year

Fall semester -- 16 total credits

- ME 4200 - Vibrations and Controls (4)
- ME 4500 - Energy Systems Analysis and Design (4)
- Professional Elective (4)
- General Education (4)

Winter semester -- 16 total credits

- ME 4300 - Mechanical Systems Design (4)
- ME 4999 - Senior Mechanical Engineering Design Project (4)
- Professional Elective (4)
- General Education (4)

Mechanical Engineering, B.S.E., Specialization in Automotive Engineering

The Mechanical Engineering Department offers optional specializations in Automotive Engineering, Manufacturing, and Energy to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of specialization in their degree. Specializations are available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each specialization are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a specialization may require more than 128 credits. Students may earn only one specialization and the specialization must be completed as part of their degree. The specialization will be noted on the students' transcript and diploma.

See Mechanical Engineering, B.S.E. and adviser for complete details on specialization.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechanical Engineering, B.S.E., Specialization in Automotive Engineering

The Automotive Engineering Specialization includes courses related to powertrain, vehicle dynamics, as well as systems integration as they relate to vehicle design. To earn a Bachelor of Science degree in Mechanical Engineering with a specialization in Automotive Engineering, students must complete the following sequence of courses to satisfy their professional electives requirement.

Required fundamental subjects - 12 credits

- ME 4220 - Vehicle Dynamics (4)
- ME 4350 - Mechanical Computer-Aided Engineering (4)

- ME 4540 - Internal Combustion Engines I (4)

Select at least 4 credits from the following

- ME 4230 - Automotive Driveline Dynamics (4)
- ME 4260 - Acoustics and Noise Control (4)
- ME 4510 - Intermediate Fluid Mechanics (4)
- ME 4535 - Introduction to Electric Drive Vehicle Engineering (4)
- ME 4630 - Lubrication, Friction, and Wear (4)
- ME 4803 - PREP III: Powertrain Readiness Engineering Program (2)
- ME 4804 - PREP IV: Powertrain Readiness Engineering Program (2)
- ME 4900 - Special Topics (2 TO 4) with prior approval
- ME 5900 - Special Topics (2 TO 4) with prior approval
- ME 5560 - Combustion Processes (4) with prior approval
- ECE 4110 - Automotive Electronics (4)
- ECE 4520 - Automotive Mechatronics I (4)

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science in Engineering with a major in Mechanical Engineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Forms may be obtained from the SECS Undergraduate advising office or from the SECS website. At the time that major standing is approved, students with majors of Pre-Mechanical Engineering will have their major changed to Mechanical Engineering. Approval of both a major standing application and change of major to Mechanical Engineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Mechanical Engineering, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, APM 2555, CHM 1440, PHY 1610 (or PHY 1510), PHY 1620 (or PHY 1520);

B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600, EGR 2800. Note that some mechanical engineering courses require a minimum grade of C in EGR 2500 or EGR 2800;

C) have no more than two grades below C in the required courses in A and B above;

D) have not attempted any course listed in A and B above more than three times; and

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a GPA of at least 2.0 within each course group: mathematics and sciences, engineering core, and professional courses (including required professional subjects and professional electives) and a grade of C or better in the senior design capstone course (ME 4999 or ME 4998). Within professional courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three repeat attempts per course are permitted.

Mechanical Engineering, B.S.E., Specialization in Energy

The Mechanical Engineering Department offers optional specializations in Automotive Engineering, Manufacturing, and Energy to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of specialization in their degree. Specializations are available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each specialization are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a specialization may require more than 128 credits. Students may earn only one specialization and the specialization must be completed as part of their degree. The specialization will be noted on the students' transcript and diploma.

See Mechanical Engineering, B.S.E. and adviser for complete details on specialization.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechanical Engineering, B.S.E., Specialization in Energy

The Energy Specialization includes fundamental courses in energy systems as well as fundamental courses in the fluid and thermal sciences. To earn a Bachelor of Science degree in Mechanical Engineering with a specialization in Energy, students must complete the following sequence of courses to satisfy their professional electives requirement.

Required fundamental subjects - 8 credits

- ME 4510 - Intermediate Fluid Mechanics (4) or ME 4520 - Intermediate Heat Transfer (4)
- ME 4530 - Alternative Energy Systems (4)

Select at least 8 credits from the following

- ME 4510 - Intermediate Fluid Mechanics (4) if not taken as a required fundamental subject
- ME 4520 - Intermediate Heat Transfer (4) if not taken as a required fundamental subject

- ME 4535 - Introduction to Electric Drive Vehicle Engineering (4)
- ME 4540 - Internal Combustion Engines I (4)
- ME 4550 - Fluid and Thermal Systems Design (4)
- ME 4580 - Fundamentals of Nuclear Engineering (3)
- ME 4585 - Nuclear Reactors and Power Plants (3)
- ME 4900 - Special Topics (2 TO 4) with prior approval
- ME 4996 - Independent Study (1 TO 4) with prior approval
- ME 5900 - Special Topics (2 TO 4) with prior approval
- ME 5560 - Combustion Processes (4) with prior approval
- PHY 3180 - Nuclear Physics Laboratory (2) (requires ME 4580 (3) as a pre- or co-requisite)

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science in Engineering with a major in Mechanical Engineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Forms may be obtained from the SECS Undergraduate advising office or from the SECS website. At the time that major standing is approved, students with majors of Pre-Mechanical Engineering will have their major changed to Mechanical Engineering. Approval of both a major standing application and change of major to Mechanical Engineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Mechanical Engineering, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, APM 2555, CHM 1440, PHY 1610 (or PHY 1510), PHY 1620 (or PHY 1520);

B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600, EGR 2800. Note that some mechanical engineering courses require a minimum grade of C in EGR 2500 or EGR 2800;

C) have no more than two grades below C in the required courses in A and B above;

D) have not attempted any course listed in A and B above more than three times; and

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a GPA of at least 2.0 within each course group: mathematics and sciences, engineering core, and professional courses (including required professional subjects and professional electives) and a grade of C or better in the senior design capstone course (ME 4999 or ME 4998). Within professional courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three repeat attempts per course are permitted.

Mechanical Engineering, B.S.E., Specialization in Manufacturing

The Mechanical Engineering Department offers optional specializations in Automotive Engineering, Manufacturing, and Energy to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of specialization in their degree. Specializations are available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each specialization are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a specialization may require more than 128 credits. Students may earn only one specialization and the specialization must be completed as part of their degree. The specialization will be noted on the students' transcript and diploma.

See Mechanical Engineering, B.S.E. and adviser for complete details on specialization.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechanical Engineering, B.S.E., Specialization in Manufacturing

The Manufacturing Specialization includes courses related to manufacturing processes for metals and plastics as well as manufacturing systems. To earn a Bachelor of Science degree in Mechanical Engineering with a specialization in Manufacturing, students must complete the following sequence of courses to satisfy their professional electives requirement.

Required fundamental subjects - 12 credits

- ME 4360 - Mechanical Computer-Aided Manufacturing (4)
- ME 4600 - Materials Properties and Processes (4)
- ME 4700 - Manufacturing Processes (4)

Select at least 4 credits from the following

- ECE 4400 - Automatic Control Systems (4)
- ISE 4485 - Statistical Quality Analysis (4)
- ME 4710 - Flexible and Lean Manufacturing Systems (4)
- ME 4740 - Robotic Systems (4)
- ME 4750 - Optical Measurement and Quality Inspection (4)

- ME 4900 - Special Topics (2 TO 4) with prior approval
- ME 5900 - Special Topics (2 TO 4) with prior approval
- ME 5700 - Polymer Processing (4)

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science in Engineering with a major in Mechanical Engineering, students must gain major standing. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Forms may be obtained from the SECS Undergraduate advising office or from the SECS website. At the time that major standing is approved, students with majors of Pre-Mechanical Engineering will have their major changed to Mechanical Engineering. Approval of both a major standing application and change of major to Mechanical Engineering is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Mechanical Engineering, students must:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, APM 2555, CHM 1440 ,PHY 1610 (or PHY 1510), PHY 1620 (or PHY 1520).

B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600, EGR 2800. Note that some mechanical engineering courses require a minimum grade of C in EGR 2500 or EGR 2800.

C) have no more than two grades below C in the required courses in A and B above;

D) have not attempted any course listed in A and B above more than three times; and

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements

Satisfactory completion of the program requires a GPA of at least 2.0 within each course group: mathematics and sciences, engineering core, and professional courses (including required professional subjects and professional electives) and a grade of C or better in the senior design capstone course (ME 4999 or ME 4998). Within professional courses, at most two grades below C are permitted, at most two different courses may be repeated, and a total of three repeat attempts per course are permitted.

Department of Engineering Sciences Programs

Engineering Chemistry Program

The program in engineering chemistry, which is offered by the Department of Chemistry in cooperation with the School of Engineering and Computer Science, leads to the Bachelor of Science degree with a major in engineering chemistry. It is intended for well-qualified students who seek a basic preparation in engineering along with a highly professional chemistry program.

Engineering Physics Program

The program in engineering physics is offered jointly by the School of Engineering and Computer Science and the College of Arts and Sciences. This program blends the pure and applied, and the theoretical and practical aspects of scientific knowledge into a meaningful educational experience. Through the university's cooperative education program, engineering physics students may opt to combine a relevant work experience with their formal education.

Engineering Chemistry, B.S.

The program in engineering chemistry, which is offered by the Department of Chemistry in cooperation with the School of Engineering and Computer Science, leads to the Bachelor of Science degree with a major in engineering chemistry. It is intended for well-qualified students who seek a basic preparation in engineering along with a highly professional chemistry program. Students in this program are not required to complete the College of Arts and Sciences college exploratory requirements. To earn the degree of Bachelor of Science with a major in engineering chemistry, students must complete a minimum of 128 credits, satisfy writing requirement (also see Undergraduate degree requirements) and meet the following requirements:

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in engineering chemistry, B.S. program

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below.

Foundations:

- Writing Foundations - WRT 1060
- Formal Reasoning (satisfied by MTH 1554; see Mathematics and Sciences)

Explorations: One course from each of the seven Explorations areas:

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (satisfied by EGR 2400 or EGR 2500; see Engineering Core)
- Social Science
- Western Civilization (satisfied by PHL 1310; see Additional Major Requirements)

Integration:

- Knowledge Applications (satisfied by MTH 1555; see Mathematics and Sciences)
- Capstone (satisfied by ME 4999 or CHM 4996; see Required Professional Subjects)

U.S. Diversity:

- May be met by an approved course in the Explorations area

Writing Intensive:

- Writing Intensive in the Major (satisfied by ME 4999 or CHM 4996; see Required Professional Subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements:

All engineering chemistry students must meet the following requirement. This course can meet general education exploration areas above.

- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and Sciences

- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- MTH 2554 - Multivariable Calculus (4)
- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)

- PHY 1610 - Fundamentals of Physics I (4)
- PHY 1620 - Fundamentals of Physics II (4)
- CHM 1440 - General Chemistry I (4) and CHM 1470 - General Chemistry Laboratory I (1)
- CHM 1450 - General Chemistry II (4) and CHM 1480 - General Chemistry Laboratory II (1)

Engineering Core

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)

Required Professional Subjects

- CHM 2340 - Organic Chemistry I (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- CHM 3250 - Analytical Chemistry (4)
- CHM 3420 - Physical Chemistry I (4)
- CHM 3430 - Physical Chemistry II (4)
- CHM 3480 - Physical Chemistry Laboratory (2)
- CHM 4710 - Structure and Synthesis of Polymers (3)
- ME 3500 - Introduction to Fluid and Thermal Energy Transport (4)
- One lecture or laboratory course above CHM 4000 (3); Note: CHM 3620 may satisfy this requirement.
- ME 4999 - Senior Mechanical Engineering Design Project (4) or CHM 4996 - Independent Research (3)

Professional Electives

Students must complete a minimum of 8 credits from:

- ME 4500 - Energy Systems Analysis and Design (4)
- ME 4510 - Intermediate Fluid Mechanics (4)

- ME 4520 - Intermediate Heat Transfer (4)
- ME 4540 - Internal Combustion Engines I (4)
- ME 4550 - Fluid and Thermal Systems Design (4)
- ECE 4400 - Automatic Control Systems (4)

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science with a major in Engineering Chemistry, students must gain major standing in Engineering Chemistry. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Forms may be obtained from the SECS Undergraduate advising office or from the SECS website. At the time that major standing is approved, students with majors of Pre-Engineering Chemistry will have their major changed to Engineering Chemistry. Approval of both a major standing application and change of major to Engineering Chemistry is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Engineering Chemistry, students must meet the following requirements:

A) have an average GPA of 2.0 in the following mathematics and science courses: MTH 1554, MTH 1555, APM 2555, PHY 1610, PHY 1620, CHM 1440, CHM 1450, CHM 1470 and CHM 1480.

B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600 and EGR 2800.

C) have no more than two grades below C in the required courses in A and B above.

D) have not attempted any course listed in A and B above more than three times.

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance requirements and additional general education notes

Students must complete the university's General Education Requirements, including the capstone course of either CHM 4996 or ME 4999 (see Undergraduate Degree Requirements). In addition to the previously stated requirements, satisfactory completion of the program requires an average grade of at least C in the courses taken to satisfy the engineering and chemistry requirements and in the courses prescribed for the mathematics and science requirements.

Sample Engineering Chemistry schedule

Freshman year

Fall Semester -- 18 credits

- CHM 1440 - General Chemistry I (4)

- CHM 1470 - General Chemistry Laboratory I (1)
- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- MTH 1554 - Calculus I (4)
- General Education Course (4)

Winter Semester -- 17 credits

- CHM 1450 - General Chemistry II (4)
- CHM 1480 - General Chemistry Laboratory II (1)
- MTH 1555 - Calculus II (4)
- PHY 1610 - Fundamentals of Physics I (4)
- General Education Course (4)

Sophomore year

Fall Semester -- 16 credits

- CHM 2340 - Organic Chemistry I (4)
- MTH 2554 - Multivariable Calculus (4)
- PHY 1620 - Fundamentals of Physics II (4)
- General Education Course (4)

Winter Semester -- 18 credits

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- CHM 2350 - Organic Chemistry II (4)
- CHM 2370 - Organic Chemistry Laboratory (2)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- General Education Course (4)

Junior year

Fall Semester -- 16 credits

- CHM 3250 - Analytical Chemistry (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- General Education Course (4)

Winter Semester -- 16 credits

- CHM 3420 - Physical Chemistry I (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)
- ME 3500 - Introduction to Fluid and Thermal Energy Transport (4)
- General Education Course (4)

Senior year

Fall Semester -- 14 credits

- CHM 3430 - Physical Chemistry II (4)
- CHM 4710 - Structure and Synthesis of Polymers (3)
- CHM Lecture or Laboratory above CHM 4000 (3)
- Professional Elective (4)

Winter Semester -- 13 - 14 credits

- CHM 3480 - Physical Chemistry Laboratory (2)
- CHM 4996 - Independent Research (3) or ME 4999 - Senior Mechanical Engineering Design Project (4)
- Professional Elective (4)
- General Education Course (4)

Engineering Physics, B.S.

Engineering physics is an interdisciplinary field at the intersection of engineering and physics. Oakland University's undergraduate program in engineering physics is designed to provide students with (i) an in-depth scientific understanding of the construction of physical reality, and (ii) practical engineering knowledge of how to apply this understanding to state-of-the-art technologies. The program offers strong fundamentals in quantum mechanics, electromagnetism, vibrations and waves, as well as a solid foundation in core engineering skills. Students can choose from a technology depth area in solid-state physics or applied mechanics. To earn the degree of Bachelor of Science with a major in engineering physics, students must complete a minimum of 128 credits, demonstrate writing proficiency (see Undergraduate degree requirements) and meet the following requirements:

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Engineering Physics, B.S.

General Education requirements

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, U.S. Diversity, and Capstone. For details, refer to the General Education section of the catalog. In order to satisfy both general education and other program requirements, in some of the general education areas students should select from the courses listed below.:

Foundations:

- Writing Foundations - WRT 1060
- Formal Reasoning (satisfied by MTH 1554; see Mathematics and Sciences)

Explorations: One course from each of the seven Explorations areas:

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology (satisfied by EGR 2400 or EGR 2500; see Engineering Core)
- Social Science
- Western Civilization (satisfied by PHL 1310; see Additional Major Requirements)

Integration:

- Knowledge Applications (satisfied by MTH 1555; see Mathematics and Sciences)
- Capstone (satisfied by PHY 4995; see Required Professional Subjects)

U.S. Diversity:

- May be met by an approved course in the Explorations area

Writing Intensive:

- Writing Intensive in the Major (satisfied by PHY 4995; see Required Professional Subjects)
- Writing Intensive in General Education (may be met by an approved course in the Explorations area)

Additional Major Requirements:

- All engineering physics students must meet the following requirement. This course can meet general education exploration areas above.
- Professional Ethics: PHL 1310 - Introduction to Ethics in Science and Engineering

In order to graduate on-schedule without taking additional courses, it is highly recommended that students meet with an SECS Undergraduate Academic Adviser concerning the selection of all of their general education courses.

Mathematics and sciences

- MTH 1554 - Calculus I (4)
- MTH 1555 - Calculus II (4)
- MTH 2554 - Multivariable Calculus (4)
- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- CHM 1440 - General Chemistry I (4)
- PHY 1510 - Introductory Physics I (4) and PHY 1100 - General Physics Lab I (1)
- PHY 1520 - Introductory Physics II (4) and PHY 1110 - General Physics Lab II (1)
- PHY 3170 - Modern Physics Laboratory (2)
- PHY 3510 - Intermediate Theoretical Physics (4)
- PHY 3610 - Mechanics I (4)
- PHY 3660 - Vibrations and Waves (4)
- PHY 3710 - Foundations of Modern Physics (4)
- Approved Math/Science Electives from the list below: (4)

Approved math/science Elective options:

- MTH 2775 - Linear Algebra (4)
- APM 2663 - Discrete Mathematics (4)

Engineering Core

- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- EGR 2800 - Design and Analysis of Electromechanical Systems (4)

Required professional subjects

- ECE 2005 - Electric Circuits (4)
- PHY 4995 - Independent Research (3 TO 6)

Professional Electives

Engineering Physics students must complete one of the two depth areas below for a minimum of 12 credits. For the depth areas, students must complete the two required courses and must select one course from the design electives. Students with different interests can construct different depth areas in consultation with the program coordinators, and via the SECS Petition of Exception process. Students must also complete 8 additional professional elective credits selected from the Technical Electives area. Courses taken as technical electives may not be used for credit in the technology depth area, design electives, or required professional subjects.

1. Solid state physics and technology depth area

- ECE 4130 - Electronic Materials and Devices (4)
- PHY 4720 - Quantum Mechanics I (4)

Choose one design elective course from the list below

- ECE 3105 - Electronic Circuits and Devices II (4)
- ECE 4135 - Microelectronic Fabrication Technologies (4)
- ECE 4210 - Communication Systems (4)
- ECE 4710 - Computer Hardware Design (4)

2. Applied mechanics depth area

- ME 3200 - Engineering Mechanics (4)
- ME 3250 - Mechanics of Materials (4)

Choose one design elective course from the list below

- ME 4500 - Energy Systems Analysis and Design (4)
- ME 4210 - Analysis and Design of Mechanical Structures (4)
- ME 4550 - Fluid and Thermal Systems Design (4)
- ME 4300 - Mechanical Systems Design (4)
- ME 4350 - Mechanical Computer-Aided Engineering (4)

Technical electives, choose 8 credits from the list below

- APM 2663 - Discrete Mathematics (4)
- ECE 2700 - Digital Logic Design (4)

- ECE 3100 - Electronic Circuits and Devices I (4)
- ECE 3105 - Electronic Circuits and Devices II (4)
- ECE 3204 - Signals and Systems (4)
- ECE 4130 - Electronic Materials and Devices (4)
- ECE 4132 - VLSIC Design of Digital Chips (4)
- ECE 4710 - Computer Hardware Design (4)
- ME 3250 - Mechanics of Materials (4)
- ME 3300 - Computer-Aided Design (3)
- ME 3500 - Introduction to Fluid and Thermal Energy Transport (4)
- ME 3700 - Properties of Materials (4)
- MTH 2775 - Linear Algebra (4)
- PHY 3180 - Nuclear Physics Laboratory (2)
- PHY 3310 - Optics (4)
- PHY 3720 - Nuclear Physics (4)
- PHY 3810 - Electricity and Magnetism (4)
- PHY 4180 - Modern Optics Laboratory (2)
- PHY 4720 - Quantum Mechanics I (4)
- PHY 4820 - Electricity and Magnetism II (4)
- PHY 4870 - Electricity and Magnetism Laboratory (2)

Any 4000-level ECE, ME or ISE courses (4-8)

Major Standing

To enroll in 3000- or higher level courses and to become candidates for the degree of Bachelor of Science with a major in Engineering Physics, students must gain major standing in Engineering Physics. An application for major standing should be submitted prior to intended enrollment in 3000- or higher level courses. Forms may be obtained from the SECS Undergraduate advising office or from the SECS website. At the time that major standing is approved, students with majors of Pre-Engineering Physics will have their major changed to Engineering Physics. Approval of both a major standing application and change of major to Engineering Physics is required prior to enrolling in any 3000- or higher-level courses.

To gain major standing in Engineering Physics, students must meet the following requirements:

A) have an average GPA of 2.0 in the following mathematics and science courses: APM 2555, CHM 1440, MTH 1554, MTH 1555, PHY 1510, PHY 1100, PHY 1520 and PHY 1110.

B) have an average GPA of 2.0 in the following engineering core courses: EGR 1200, EGR 1400, EGR 2400, EGR 2500, EGR 2600 and EGR 2800.

C) have no more than two grades below C in the required courses in A and B above.

D) have not attempted any course listed in A and B above more than three times.

E) have not repeated more than three different courses listed in A and B. Courses in which a W (withdrawal) grade is recorded will not be counted.

Conditional major standing may be granted in the semester in which the student will complete the courses listed in A and B above.

Performance Requirements and Additional General Education Notes

Satisfactory completion of the program requires an average grade of C within each course group: mathematics and sciences, engineering core, and professional courses (including required professional subjects and professional depth areas). Within professional courses, at most two grades below C are permitted, at most two different courses may be repeated and a total of three attempts are permitted. Students in this program are not required to complete the college distribution requirement of the College of Arts and Sciences.

Sample Engineering Physics schedule

Freshman Year

Fall Semester - 17 credits

- CHM 1440 - General Chemistry I (4)
- EGR 1200 - Engineering Graphics and CAD (1)
- EGR 1400 - Computer Problem Solving in Engineering and Computer Science (4)
- MTH 1554 - Calculus I (4)
- General Education Course (4)

Winter Semester - 17 credits

- MTH 1555 - Calculus II (4)
- PHY 1510 - Introductory Physics I (4)
- PHY 1100 - General Physics Lab I (1)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- General Education Course (4)

Sophomore year

Fall Semester - 17 credits

- MTH 2554 - Multivariable Calculus (4)

- PHY 1520 - Introductory Physics II (4)
- PHY 1110 - General Physics Lab II (1)
- EGR 2600 - Introduction to Industrial and Systems Engineering (4)
- General Education Course (4)

Winter Semester - 16 credits

- APM 2555 - Introduction to Differential Equations with Matrix Algebra (4)
- ECE 2005 - Electric Circuits (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- General Education Course (4)

Junior year

Fall Semester - 14 credits

- EGR 2800 - Design and Analysis of Electromechanical Systems (4)
- PHY 3170 - Modern Physics Laboratory (2)
- PHY 3710 - Foundations of Modern Physics (4)
- General Education Course (4)

Winter Semester - 16 credits

- ECE 3100 - Electronic Circuits and Devices I (4)
- PHY 3310, PHY 3810, or PHY 4720 (4)
- Professional Elective (4)
- General Education Course (4)

Senior year

Fall Semester -- 16 credits

- PHY 3510 - Intermediate Theoretical Physics (4)
- PHY 3610 - Mechanics I (4)
- Technical Elective (4)
- General Education (4)

Winter Semester - 16 credits

- Technical Elective (4)
- Professional Elective (4)

- Professional Elective (4)
- PHY 4995 - Independent Research (4)

Department of International Orientation for Engineering/Computer Science

In view of the ever-increasing globalization of industry, students in engineering and computer science need to be aware of their international opportunities and also to develop an intellectual background that enhances their ability to respond to professional challenges in the global environment. Contact the program's coordinator, Lunjin Lu, l2lu@oakland.edu, for details about the program.

International Orientation for Engineering/Computer Science Students Minor

To obtain a minor in international orientation for engineering/computer science students, students must complete the following courses with an average GPA of 2.0 in each course:

Requirements

- ECN 2000 - Principles of Macroeconomics (4) or ECN 2020 - Principles of Global Macroeconomics (4)
- Foreign language consistent with the introductory course (8)
- One advanced course (4 credits) from PS 3040 or ECN 3730
- EGR 4910 (4), which requires eight weeks of study/work abroad

Introductory course – 4 credits

- IS 2100 - Perspectives on China (4)
- IS 2200 - Perspectives on Japan (4)
- IS 2300 - Perspectives on Africa (4)
- IS 2400 - Perspectives on India (4)
- IS 2500 - Perspectives on Latin America (4)
- IS 2600 - Perspectives on Russia and Eastern Europe (4)

- HST 3400 - Europe since 1914 (4)

Additional Information

Some of the courses listed above also satisfy general education requirements. This minor is open to the students in the School of Engineering and Computer Science

School of Nursing Program Requirements

The School of Nursing offers programs of study leading to the Bachelor of Science in Nursing (BSN) degree, Master of Science in Nursing (MSN) degree, Doctor of Nursing Practice (DNP) degree, and Doctor of Philosophy in Nursing (PhD) degree. Graduates of the undergraduate program pre-licensure tracks (Basic-BSN and Accelerated Second-Degree BSN) are eligible to take the NCLEX-RN licensure examination.

Baccalaureate Program Curriculum

The BSN curriculum is developed to meet professional standards in accordance with the mission and vision of Oakland University and the School of Nursing.

Baccalaureate Program Outcomes (Student-Learning Outcomes)

1. Apply concepts from the Arts and Sciences in the promotion of health and the management of simple to complex nursing care.
2. Demonstrate use of the nursing process in clinical decision-making.
3. Apply principles of patient safety and quality improvement in nursing practice.
4. Apply principles of wellness, health promotion, disease prevention, rehabilitation, risk reduction, palliative and end-of-life care to individuals, families, communities, and populations.
5. Demonstrate values-based, ethical professional behaviors that integrate caring, autonomy, integrity, social justice, respect for diversity and human dignity throughout the lifespan.
6. Use best-evidence in nursing practice.
7. Demonstrate inter/intra-professional collaboration to optimize health outcomes.
8. Demonstrate transformational leadership in nursing practice in a variety of settings.
9. Use knowledge, processes, and skills from informatics to inform clinical decision making.
10. Apply knowledge of health policy, economics, legal, and political principles to nursing practice.
11. Demonstrate a commitment to professional development and lifelong learning.

Academic Advising

If you are interested in learning more about admission criteria, the application process, course requirements and important dates contact the School of Nursing advising office. Information sessions are offered monthly for each program track. The information provided at these sessions is useful for

those students who want to learn more about the academic programs offered by the School of Nursing before applying to Oakland University.

All students admitted to the Basic-BSN and ASD tracks are required to attend a mandatory SON orientation run by the SON Academic Advising Office. Students are encouraged to meet regularly with their academic adviser to discuss academic issues and/or concerns.

Bachelor of Science in Wellness and Health Promotion to Accelerated Second-Degree BSN Pathway

The School of Health Sciences (SHS) and the School of Nursing (SON) have partnered to create the Wellness and Health Promotion (WHP) to Accelerated Second-Degree (ASD) Bachelor of Science in Nursing (BSN) pathway. This pathway is for first-time Pre-Nursing freshman students who did not gain admission to the Basic BSN program after their first year of study. Up to five pre-nursing students will be offered automatic admission to the ASD program through the WHP-ASD pathway. Students on the WHP-ASD pathway must meet all of the following requirements to gain admission into the SON's ASD BSN track in the semester following degree attainment:

1. Completion of all nursing prerequisites as listed in the previous section under "Basic-BSN and ASD Competitive Admission Requirements".
2. A combined grade point average of 3.2 or higher in BIO 1200, BIO 2006, CHM 1040, CHM 2010, and PSY 1000.
3. Completion of the B.S. in WHP with a 3.0 cumulative grade point average or higher.
4. No repeated courses in the B.S. in WHP.
5. Completion of CDS 3300 and CDS 3310 or BIO 3520, with a grade of C or higher.
6. Completion of PSY 2250 with a grade of B- or higher.
7. Adherence to Oakland University's undergraduate admission requirements for second-degree students, including the completion of a second-degree application through Undergraduate Admissions.

BSN Degree Completion Sequence (RN-BSN Track)

Additional information for RN to BSN Plan of Study on the SON Website.

The School of Nursing offers an RN-BSN track for registered nurses with an Associate's Degree in Nursing (ADN) and who possess a valid and unrestricted RN license. A cumulative GPA of 2.5 or higher from the student's ADN program is required for unconditional admission to the RN-BSN track. Students seeking admission to the RN-BSN track must first apply to Oakland University through the OU Office of Undergraduate Admissions. The School of Nursing will verify the applicant's unrestricted RN license. Students admitted to the RN-BSN track will be required to meet all Oakland University general education requirements and should seek guidance regarding transcript evaluation and obtaining the Michigan Transfer Agreement (MTA) through the School of Nursing Academic Advising office.

Applicants who have been dismissed from a BSN completion program or who have ever received two (or more) grades in nursing courses below B- must obtain SON permission to apply to the BSN Degree Completion Sequence (RN-BSN Track). For more information contact SON Academic Advising.

Wellness and Health Promotion, B.S. to Accelerated Second Degree BSN Pathway

The School of Health Sciences (SHS) and the School of Nursing (SON) have partnered to create the Wellness and Health Promotion (WHP) to Accelerated Second-Degree (ASD) Bachelor of Science in Nursing (BSN) pathway. This pathway is for first-time Pre-Nursing freshman students who did not gain admission to the Basic BSN program after their first year of study. Up to five pre-nursing students will be offered automatic admission to the ASD program through the WHP-ASD pathway. Students on the WHP-ASD pathway must meet all of the following requirements to gain admission into the SON's ASD BSN track in the semester following degree attainment:

1. Completion of all nursing prerequisites in the first year of study with a minimum grade of Bin each course and with no repeated coursework. These courses include BIO 1200, BIO 2006, CHM 1040, CHM 2010, PSY 1000, PHY 1100 (1000 or 1300 also accepted), and WRT 1060.
2. A combined grade point average of 3.2 or higher in BIO 1200, BIO 2006, CHM 1040, CHM 2010, and PSY 1000.
3. Completion of the B.S. in WHP with a 3.0 cumulative grade point average or higher.
4. No repeated courses in the B.S. in WHP.
5. Completion of CDS 3300 and CDS 3310 or BIO 3520, with a minimum grade of C.
6. Completion of PSY 2250 with a minimum grade of B-.
7. Adherence to Oakland University's undergraduate admission requirements for second-degree students, including the completion of a second-degree application through Undergraduate Admissions.

BSN Accelerated Second-Degree (Pre-Licensure)

Requirements for the Bachelor of Science in Nursing - BSN Degree: ASD Track

Students must satisfy the following:

1. Complete all academic requirements identified in the SON plan of study.
2. Satisfy the OU residency requirement.
3. Complete at least 32 credits at or above the 3000-level. Accelerated Second-Degree BSN Track

Semester 1 (18 credits)

- BIO 3520 - Introduction to Human Microbiology (4) or CDS 3300 - Microbiology of Infectious Diseases(3) and CDS 3310 - Microbiology of Infectious Diseases Laboratory(1) (The School of Nursing reserves the right to apply credits from OU and/or courses taken at other institutions to meet this requirement)
- NRS 2010 - Pathophysiology (3)
- NRS 2012 - Introduction to Professional Nursing (3)
- NRS 2014 - Health Assessment (4)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4) (The School of Nursing reserves the right to apply credits from OU and/or courses taken at other institutions to meet this requirement)

Semester 2 (17 credits)

- NRS 2020 - Pharmacology (4)
- NRS 2024 - Fundamentals of Professional Nursing Practice (5)
- NRS 3012 - Research for Evidence-Based Nursing Practice (3)
- NRS 3015 - Nursing Care of Adults I (5)

Semester 3 (17 credits)

- NRS 3022 - Informatics for Nursing Practice (2)
- NRS 3016 - Nursing Care of Individuals with Behavioral and Mental Health Disorders (5)
- NRS 3025 - Nursing Care of Adults II (5)
- NRS 3026 - Nursing Care of the Childbearing Family (5)

Semester 4 (17 credits)

- NRS 4012 - Nursing Leadership (2)
- NRS 4015 - Nursing Care of Communities and Populations (5)
- NRS 4016 - Nursing Care of the Childrearing Family (5)
- NRS 4026 - Nursing Capstone (5)

69 Total Credits

BSN Basic (Pre-Licensure)

Requirements for the Bachelor of Science in Nursing - BSN Degree: Basic Track (Pre-Licensure)

Students must complete 125 credits and satisfy the following:

1. Complete all academic requirements identified in the SON plan of study.
2. Satisfy the general education requirements.
3. Complete at least 32 credits at or above the 3000-level.

Pre-nursing Semester 1 (16 credits)

- BIO 1200 - Biology I (4)
- CHM 1040 - Introduction to Chemical Principles (4)
- PSY 1000 - Introduction to Psychology (4)
- WRT 1050 - Composition I (4)

Pre-nursing Semester 2 (17 credits)

- BIO 2006 - Clinical Anatomy and Physiology (5)
- CHM 2010 - Introduction to Organic and Biological Chemistry (4)
- WRT 1060 - Composition II (4)
- (Select one) PHL 1000, PHL 1070, PHL 1100, PHL 1300, PHL 2200, PHL 2210, PHL 2220 (4)

Nursing Year 1

Semester 1 (14 credits)

- BIO 3520 - Introduction to Human Microbiology (4) or CDS 3300 - Microbiology of Infectious Diseases (3) and CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)
- NRS 2010 - Pathophysiology (3)
- NRS 2012 - Introduction to Professional Nursing (3)
- NRS 2014 - Health Assessment (0 OR 4)

Semester 2 (17 credits)

- NRS 2020 - Pharmacology (4)
- NRS 2024 - Fundamentals of Professional Nursing Practice (5)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4)
- General Education course (4)

Nursing Year 2

Semester 1 (17 credits)

- NRS 3012 - Research for Evidence-Based Nursing Practice (3)
- NRS 3015 - Nursing Care of Adults I (5)

- NRS 3016 - Nursing Care of Individuals with Behavioral and Mental Health Disorders (5)
- General Education course (4)

Semester 2 (16 credits)

- NRS 3022 - Informatics for Nursing Practice (2)
- NRS 3025 - Nursing Care of Adults II (5)
- NRS 3026 - Nursing Care of the Childbearing Family (5)
- General Education course (4)

Nursing Year 3

Semester 1 (16 credits)

- NRS 4012 - Nursing Leadership (2)
- NRS 4015 - Nursing Care of Communities and Populations (5)
- NRS 4016 - Nursing Care of the Childrearing Family (5)
- General Education course (4)

Semester 2 (12 credits)

- NRS 4026 - Nursing Capstone (5)
- NRS XXXX - Nursing Elective (3)
- General Education course (4)

125 Total Credits

Note

Writing Intensive in General Education: Recommend Global Perspectives that also meets Writing Intensive in General Education.

General Education: Students choose one approved course from each of the following categories: Arts; Foreign Language and Culture; Formal Reasoning; Global Perspective; Literature; Natural Science and Technology; Social Science; Western Civilization; Writing Intensive in the General Education. Students are encouraged to consult with an academic adviser for assistance selecting and scheduling general education courses and in particular the course selected to fulfill the Writing Intensive in the General Education within their academic schedule. In many instances, you may select one course to fulfill more than one degree requirement.

BSN Degree Completion Sequence (RN-BSN, Post-Licensure)

Requirements for the Bachelor of Science in Nursing - BSN Degree: BSN Degree Completion Sequence (RN-BSN) Track for Registered Nurses

Students must complete all academic requirements identified in the SON plan of study.

Full-Time

Semester 1 (14 credits)

- NRS 3511 - Transition to Baccalaureate Nursing Education (4)
- NRS 4551 - Population Health (4)
- NRS 3022 - Informatics for Nursing Practice (2)
- NRS 4561 - Community and Global Health (4)

Semester 2 (14 credits)

- NRS 3071 - Research Basis of Nursing Practice (4)
- NRS 3541 - Nursing Leadership and Health Care Issues (3)
- NRS 4571 - Contemporary Nursing: Professional and Ethical Issues (4)
- NRS XXXX - Nursing Elective (3)

Semester 3 (4 credits)

- NRS 4585 - Nursing Capstone Experience (4)

Part-Time

Semester 1 (6 credits)

- NRS 3511 - Transition to Baccalaureate Nursing Education (4)
- NRS 3022 - Informatics for Nursing Practice (2)

Semester 2 (7 credits)

- NRS 3071 - Research Basis of Nursing Practice (4)
- NRS XXXX - Nursing Elective (3)

Semester 3 (8 credits)

- NRS 4551 - Population Health (4)
- NRS 4561 - Community and Global Health (4)

Semester 4 (7 credits)

- NRS 3541 - Nursing Leadership and Health Care Issues (3)
- NRS 4571 - Contemporary Nursing: Professional and Ethical Issues (4)

Semester 5 (4 credits)

- NRS 4585 - Nursing Capstone Experience (4)

32 Total Nursing Credits

University Transfer policy

Students admitted to OU SON from a regionally accredited Associate's Degree in Nursing Program (ADN), may transfer a maximum of 63 credits as established by the university transfer policy. Students transferring in without the completion of the Michigan Transfer Agreement, please reference the general education transfer guide for courses that satisfy individual categories.

Additional 30 Prior Learning credits

Oakland University awards an additional 30 prior learning credits awarded for successful completion of the NCLEX-RN.

General Education Requirements

The General Education Program

Students who graduate from Oakland University have demonstrated success in two programs of study: their major degree program and OU's innovative general education program. The major program prepares students for professional success through a study of the knowledge and "hard skills" associated with their chosen careers or disciplines. The general education program provides students with the diverse learning experiences necessary to develop the breadth of knowledge and "soft skills" valued by employers and essential to our students' successful engagement as citizens and as members of their local, global and professional communities.

While the general education program at Oakland University focuses on transferable "soft skills" and abilities, our wide-range of course offerings demonstrate our faculty's commitment to providing students a broad knowledge base and opportunities to enrich their current interests and cultivate new ones through individualized programs of general study.

Build Transferable Skills

The general education program at Oakland University is designed to help students develop the knowledge, skills, and critical capacities that serve as a foundation for meeting their academic, professional, civic, and personal goals and responsibilities. The core skills of critical thinking, effective communication, information literacy, and social awareness shape each of the courses offered in our

general education program. Because they are essential to our students' educational success, these core skills are recognized as University Learning Outcomes (ULOs).

Through their general education classes, Oakland University students

- develop into CRITICAL THINKERS capable of comprehensively exploring issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion;
- become EFFECTIVE COMMUNICATORS who analyze rhetorical situations, adapt their discourse to diverse genres and media, treat their sources and source material ethically, and meet the expectations of a variety of discourse communities in the academy and beyond;
- build an integrated set of abilities that allow them to be INFORMATION LITERATE citizens who reflectively discover information, understand how that information is produced and valued, and use information ethically to create new knowledge and participate as lifelong learners in society; and
- become generous, SOCIALLY AWARE, citizens who demonstrate their intercultural competence and consider the ethical implications of their words, actions, and engagement with or indifference to other communities.

Create Your Own Program of Study

OU's general education program permits students to design their own program of study, choosing from an impressive array of course offerings. Students may choose approved general education courses that complement their major or minor area of study or choose approved courses that will take them out of their academic comfort zones, encouraging them to explore, develop, create, and engage with a variety of new ideas, methods, and skills. For example, to fulfill the Writing Intensive in General Education requirement, students may choose from more than seventy-five approved courses across the university, including writing intensive classes in art, biology, economics, communication, technical writing, environmental science, exercise science, education, business, journalism, philosophy, psychology, political science, religion, and theatre. Courses in the Global Perspective area include everything from Masterpieces of World Cinema to Principles of Global Macroeconomics, from Issues in Global Health to Exploring African Music. To fulfill the Natural Science and Technology area, students may choose from a range of courses, including Life on Earth, Electrical and Computer Engineering, Environmental Science, Language and the Brain, and the Physics of Everyday Life.

Students should meet regularly with their advisors to develop a plan of study that meets their interests, goals, and aspirations and satisfies the graduation requirements.

The program of study in general education at OU consists of courses in three areas: Foundation, Exploration, and Integration.

1. Writing Foundations (WRT 1060 - Composition II) and Formal Reasoning constitute the FOUNDATION area of General Education. These courses help students develop the processes, skills, and knowledge essential for success in their studies.
2. Approved courses in the EXPLORATION area provide the fundamental abilities that a well-educated person should have, including a critical appreciation of the ways we gain and create

knowledge and an understanding of the universe, of society, and of humankind. In their General Education studies at OU, students may choose from a variety of courses in the areas of the Arts, Language and Culture, Literature, Global Perspective, Natural Science and Technology, Social Science and Western Civilization. In their advanced years in the general education program, students are given an opportunity to integrate and apply the knowledge and skills they have already developed through Knowledge Applications and Capstone courses.

3. The INTEGRATION area helps students synthesize what they have learned in both the general education program and in their major, to identify and make use of the connections among the various disciplines and to apply their knowledge to addressing real world problems. This integrated knowledge forms the basis for students' lifelong learning, preparing them for successful careers and for productive personal and civic lives.

Oakland University's general education program also helps students develop advanced writing skills and engages students in a study of U.S. Diversity.

1. Through two WRITING INTENSIVE courses, students gain a depth in both general and discipline-specific writing skills. Writing Intensive in General Education and Writing Intensive in the Major courses may also satisfy other areas within the General Education program.
2. Because Oakland University is committed to ensuring that students develop an understanding of, and appreciation for, the history, advantages and challenges of the diversity of the United States, the general education program offers a range of courses that fulfill the U.S. DIVERSITY area, including courses in art history, anthropology, cinema, communication, dance, economics, literature, history, music, nursing, political [LG1] science, theatre, and writing and rhetoric. U.S. diversity courses may also satisfy other areas within the general education program.

General Education Requirements

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundation, Exploration, Integration, Writing, and U.S. Diversity.

1. Two courses in the Foundation Area

At least one course of at least three credits from the list of approved courses in each of the following areas:

- Writing Foundations (WRT 1060 - Composition II)
- Formal Reasoning

Notes

For alternative ways of meeting the Writing Foundations requirement, see the Academic Policies and Procedures section of the catalog.

Students must earn at least a C in WRT 1060 to meet the Writing Foundations requirement.

Students must satisfactorily complete an approved Formal Reasoning course prior to their junior standing.

2. One course from each of the seven Exploration Areas

At least one course of at least three credits from the list of approved courses in each of the following seven areas:

- Arts
- Language and Culture
- Global Perspective
- Literature
- Natural Science and Technology
- Social Science
- Western Civilization

Notes

Language and Culture courses do not satisfy the Global Perspective area.

Students may meet the Language and Culture requirement through the satisfactory completion of a course having a prerequisite of an 1140 language course, or an American Sign Language course having COM 1500 as a prerequisite. The course can not be used to satisfy any other general education area requirement.

The Language and Culture General Education area is waived for international students whose native language is not English and who have completed the equivalent of a high school diploma at a school that used a language other than English for instruction. Appropriate documentation attesting to the language of instruction and graduation from high school programs is necessary.

3. Two courses from the Integration Area

At least one course of at least three credits from the list of approved courses in each of the following areas:

- Knowledge Applications
- Capstone

Notes

Knowledge Applications courses must be outside the rubric of the student's major.

Students must complete the Capstone requirement at Oakland University.

4. Two courses from the Writing Intensive Area

At least one course of at least three credits from the list of approved courses in each of the following areas:

- Writing Intensive in the Major

- Writing Intensive in General Education

Notes

Writing Intensive in the Major and Writing Intensive in General Education courses may also satisfy other areas within the general education program.

Writing Intensive requirements cannot be met with WRT 1050 or WRT 1060.

Students must have earned a grade of C in the Writing Foundations course to enroll in a Writing Intensive course.

Students must complete the Writing intensive in the Major requirement at Oakland University.

Students may not apply non-classroom experience (course competency, Advanced Placement, International Baccalaureate, and/or CLEP credits) to satisfy general education requirements for Writing Intensive courses.

5. One course of at least three credits from the U.S. Diversity Area

Note

U.S. Diversity may be fulfilled through courses that also satisfy the Exploration areas.

Notes

Students using this catalog to meet general education requirements may also use any course subsequently approved by the General Education Committee and published in a later catalog to satisfy requirements in a particular area. If a course listed below is removed from lists of approved courses in later catalogs, it may still be used to meet a general education requirement by students following the 2023-2024 catalog until the catalog expires (six years).

Transfer students should refer to the course catalog section, Transfer Student Information.

Some of the approved courses below may not be offered every semester. Students should check with their advisers to ensure that their preferred courses will be offered.

Note that courses in these knowledge areas may not double count with each other: Writing Foundations, Formal Reasoning, Arts, Language and Culture, Global Perspective, Literature, Natural Science and Technology, Social Science, Western Civilization, and Knowledge Applications. Additional general education requirements include U.S. Diversity, Writing Intensive in General Education, Writing Intensive in the Major, and a Capstone, all of which may be met by double counting approved general education courses. It is possible for a course to be triple counted if, in addition to meeting the requirements for Explorations, Knowledge Applications or Capstone, it also meets the requirements for U.S. Diversity and Writing Intensive in General Education or Writing Intensive in the major.

General Education Course Listing

General Education Courses:

Foundation Area

Writing Foundations

The Writing Foundations area prepares students to demonstrate:

- knowledge of the elements, writing processes and organizing strategies for creating analytical and expository prose
- effective rhetorical strategies appropriate to the topic, audience, context and purpose

Notes

For alternative ways of meeting the Writing Foundations requirement, see the Academic Policies and Procedures section of the catalog.

Students must earn at least a C in WRT 1060 to meet the Writing Foundations requirement.

* WRT 1060 - Composition II

Formal Reasoning

The formal reasoning area prepares students to demonstrate:

- knowledge of one or more formal reasoning systems such as computer programming, mathematics, statistics, linguistics or logic
- application of formal reasoning to read, understand, model and solve problems across a variety of applications

Note

Students must satisfactorily complete an approved Formal Reasoning course prior to their junior standing.

- CSI 1200 - Introduction to Computing and Programming using Excel (4)
- CSI 1220 - Computer Animation (4)
- CSI 1300 - Introduction to Computer Programming (4)
- EHS 2550 - Basic Statistics for Health Sciences (3)
- LIN 1180 - Linguistic Analysis (4)
- MTE 2111 - Mathematics for Elementary Education II (4)
- MTH 1118 - Mathematical Sciences in the Modern World (4)
- MTH 1221 - Linear Programming Elementary Functions (4)
- MTH 1222 - Calculus for the Social Sciences (4)
- MTH 1554 - Calculus I (4)
- PHL 1000 - Introduction to Logic (4)

- PHL 1070 - Introduction to Symbolic Logic (4)
- PS 3080 - Systematic Political Analysis (4)
- STA 2220 - Introduction to Statistical Concepts and Reasoning (4)
- STA 2222 - Statistical Methods for Biology (4)
- STA 2226 - Applied Probability and Statistics (4)

Exploration Area

Arts

The Arts area prepares students to demonstrate:

- knowledge of cultural or historic artistic traditions in visual, auditory, movement, theatrical or cinematic art
- knowledge of the role of art as critical commentary on society and as an aesthetic expression of experience
- AH 1001 - History of Western Art, Prehistory through Medieval (4)
- AH 1002 - History of Western Art, Renaissance to Present (4)
- AH 1003 - Arts of Asia and the Islamic World (4)
- ART 1000 - Foundations of Visual Literacy (4)
- ART 2100 - Introduction to Drawing (4)
- ART 2200 - Introduction to Art + Technology (4)
- ART 2500 - Introduction to Sculpture (4)
- COM 2702 - Performance Communication (4)
- JMS 3603 - Popular Music Studies (4)
- DAN 1373 - Dance History and Appreciation (4)
- DAN 1375 - World Dance Traditions (4) (Also meets U.S. Diversity)
- DAN 1377 - Dance in Film (4) (Also meets U.S. Diversity)
- DAN 3380 - Contemporary Dance History: Revolution and Revisionism (4) (Also meets Writing Intensive in Gen Ed)
- FLM 1150 - Introduction to Film (4) (Also meets U.S. Diversity)
- LIT 2900 - Chinese Cinema (4)
- LIT 2909 - Topics in Hispanic Film (4)
- LIT 2910 - Topics in Chinese Cinema (4)

- MUE 3000 - University Chorus for General Education Arts (1)
- MUE 3003 - Oakland Chorale for General Education Arts (1)
- MUE 3018 - Chamber Orchestra for General Education Art (1)
- MUE 3028 - Symphonic Band for General Education Arts (1)
- MUE 3030 - Wind Symphony for General Education Art (1)
- MUS 1000 - An Introduction to Music (4)
- MUS 1001 - What's On Your Playlist? Music Listening and the Self (4)
- MUS 1002 - Exploring Technology in Music (4)
- MUS 1005 - Foundations of Rock (4) (Also meets U.S. Diversity)
- MUS 1006 - Exploring Film Music (4)
- MUS 1007 - Exploring Jazz (4) (Also meets U.S. Diversity)
- MUS 1010 - Exploring African Music (4)
- MUS 1011 - Exploring Caribbean Music (4) (Also meets U.S. Diversity)
- MUS 1012 - Exploring Indian Music (4)
- MUS 1014 - Exploring Hip Hop Music (4)
- MUS 1331 - History and Literature of Western Tonal Music (3)
- THA 1000 - Introduction to Theatre (4)
- THA 3001 - Theatre History I (4) (Also meets Writing Intensive in Gen Ed)
- THA 3002 - Theatre History II (4) (Also meets Writing Intensive in Gen Ed)
- THA 3006 - Cultural and Historical Development of American Musical Theatre (4) (Also meets Writing Intensive in Gen Ed and U.S. Diversity)

Language and Culture

The Language and Culture area prepares students to demonstrate:

- knowledge of an additional language and its associated culture
- knowledge of linguistic and cultural diversity and the contributions of such diversity to the global society

Notes

Language and Culture courses do not satisfy for the Global Perspective area.

Students may meet the Language and Culture requirement through the satisfactory completion of a course having a prerequisite of an 1140 language course, or an American Sign Language course having

COM 1500 as a prerequisite. The course can not be used to satisfy any other general education area requirement.

The Language and Culture General Education area is waived for international students whose native language is not English and who have completed the equivalent of a high school diploma at a school that used a language other than English for instruction. Appropriate documentation attesting to the language of instruction and graduation from high school programs is necessary.

- ARB 1140 - Introduction to Arabic Language and Culture I (4)
- CHE 1140 - Introduction to Chinese Language and Culture I (4)
- COM 1500 - Introduction to American Sign Language (4)
- COM 1501 - American Sign Language (4)
- COM 2500 - American Sign Language III (4)
- COM 2501 - American Sign Language IV (4)
- FRH 1140 - Introduction to French Language and Culture I (4)
- FRH 1190 - Accelerated Review of Elementary French and French Culture (4)
- GRM 1140 - Introduction to German Language and Culture I (4)
- HBR 1140 - Introduction to Hebrew Language and Culture I (4)
- IT 1140 - Introduction to Italian Language and Culture I (4)
- JPN 1140 - Introduction to Japanese Language and Culture I (4)
- LTN 1140 - Introduction to Latin Language and Roman Culture (4)
- LIN 1101 - The Humanity of Language (4)
- LIN 1181 - Introduction to U.S. and World Englishes (4)
- ML 1910 - Study Abroad - Tutorial in Foreign Language (3 TO 4)
- SPN 1140 - Introduction to Spanish Language and Culture I (4)
- SPN 1190 - Accelerated Review of Elementary Spanish and Spanish Culture (4)

Global Perspective

The Global Perspective area prepares students to demonstrate:

- knowledge of two or more of the following: environments, political systems, economies, societies, and religions in any region outside of the United States.
- knowledge of the role that different cultural heritages (past and present) play in forming values in another part of the world, enabling the student to function in a global context.
- AH 1003 - Arts of Asia and the Islamic World (4)

- AH 3080 - Latin American Art (4)
- AN 1111 - Introduction to Cultural Anthropology (4)
- AN 2130 - Global Human Systems (4)
- CDS 2070 - Health Care Systems Around the World (3) (Also meets Writing Intensive in Gen Ed)
- DAN 4630 - German Contemporary Dance (Study Abroad in Berlin) (4)
- ECN 1600 - Introduction to the Global Economy (4) (Also meets Writing Intensive in Major)
- ECN 2020 - Principles of Global Macroeconomics (4)
- ECN 3260 - International Economic Development (3)
- FRH 1600 - Texts from the French and Francophone World (pre-1800) (4)
- FRH 1610 - Texts from the French and Francophone World (post-1800) (4)
- FLM 2320 - Masterpieces of World Cinema (4)
- GEO 2000 - Global Human Systems (4)
- HST 2010 - World History (4)
- HST 2500 - Introduction to Middle East History (4)
- IS 2000 - Global Human Systems (4)
- IS 2005 - Issues in Global Health (4)
- IS 2060 - Global Cities (4)
- IS 2100 - Perspectives on China (4)
- IS 2121 - Women Gender and Sexuality in Asia (4)
- IS 2200 - Perspectives on Japan (4)
- IS 2300 - Perspectives on Africa (4) (Also meets Writing Intensive in Gen Ed)
- IS 2400 - Perspectives on India (4) (Also meets Writing Intensive in Gen Ed)
- IS 2500 - Perspectives on Latin America (4) (Also meets Writing Intensive in Gen Ed)
- IS 2600 - Perspectives on Russia and Eastern Europe (4) (Also meets Writing Intensive in Gen Ed)
- IS 2700 - Perspectives on the Middle East (4) (Also meets Writing Intensive in Gen Ed)
- MGT 1100 - Contemporary World Business (4) (Also meets Writing Intensive in Gen Ed)
- MUS 1010 - Exploring African Music (4)
- MUS 1017 - Exploring the Music of Latin America (4)
- MUS 4326 - Global Arts Study Abroad (4)

- NTR 3140 - Food, Nutrition, and Culture (3)
- PS 1400 - Comparative Politics (4) (Also meets Writing Intensive in Gen Ed)
- PS 1600 - Issues in World Politics (4)
- REL 1150 - Introduction to Islam (4) (Also meets Writing Intensive in Gen Ed)
- REL 1200 - Introduction to Judaism (4) (Also meets Writing Intensive in Gen Ed)
- REL 1250 - Introduction to Christianity (4)
- REL 1850 - World Religious Traditions (4)
- SPN 1300 - Drugs in Latin American Culture (4)
- WGS 3040 - LGBTQ+ Lives Through Global Lens (4)
- WGS 3810 - Global Women, Global Issues (4)
- WRT 3060 - Cross-Cultural Rhetorics (4) (Also meets Writing Intensive in Gen Ed)

Literature

The Literature area prepares students to demonstrate:

- knowledge of how literature is an expression of culture
- knowledge of literary form
- ENG 1300 - Introduction to Shakespeare (4)
- ENG 1500 - Literature of Ethnic America (4) (Also meets U.S. Diversity)
- ENG 1700 - Modern/Contemporary Literature (4)
- ENG 1800 - World Literature (4)
- ENG 2300 - British Literature (4)
- ENG 2500 - American Literature (4)
- ENG 3600 - Fiction (4)
- ENG 3610 - Poetry (4)
- ENG 3620 - Drama (4)
- ENG 3650 - The Bible as Literature (4)
- ENG 3660 - Classical Mythology (4)
- ENG 3690 - Memoir and Essay (4)
- FLM 2100 - Film and Formal Analysis (4)
- LIT 1000 - Introduction to Asian Literature (4)

- LIT 1810 - European Literature I (4)
- LIT 1820 - European Literature II (4)
- SPN 1200 - Spanish Worlds in English (4)

Natural Science and Technology

The Natural Science and Technology area prepares students to demonstrate:

- knowledge of major concepts from natural science or technology, including developing and testing of hypotheses; drawing conclusions; and reporting of findings and some laboratory experience or an effective substitute
- how to evaluate sources of information in science or technology
- BIO 1002 - Human Biology (4)
- BIO 1004 - Life on Earth (4)
- BIO 1200 - Biology I (4)
- BIO 1300 - Biology II (4)
- BIO 3000 - Biology and Society (4) (Also meets Writing Intensive in Gen Ed)
- CHM 1040 - Introduction to Chemical Principles (4)
- CHM 1440 - General Chemistry I (4) and CHM 1470 - General Chemistry Laboratory I
- CHM 3000 - Chemistry, Society Health (4) (Also meets Writing Intensive in Gen Ed)
- EGR 2400 - Introduction to Electrical and Computer Engineering (4)
- EGR 2500 - Introduction to Thermal Engineering (4)
- ENV 3080 - Introduction to Environmental Studies (4)
- GEO 1060 - Earth Science/Physical Geography (4)
- HS 2000 - Introduction to Health and Health Behaviors (3)
- LIN 1182 - Language and the Brain (4)
- MIS 1050 - Web Technologies for Managing Information Resources (3)
- PHY 1010 - General Physics I (4) and PHY 1100 - General Physics Lab I
- PHY 1040 - Astronomy: The Solar System (4)
- PHY 1050 - Astronomy: Stars and Galaxies (4)
- PHY 1060 - Earth Science/Physical Geography (4)
- PHY 1200 - The Physics of Everyday Life (4)

- PHY 1310 - Physics in Medicine (4)
- PHY 1510 - Introductory Physics I (4) and PHY 1100 - General Physics Lab I
- SCI 1000 - Physical Sciences in Life, the World and Beyond (4)

Social Science

The Social Science area prepares students to demonstrate:

- knowledge of concepts, methods and theories designed to enhance understanding of human behavior and/or societies
- application of concepts and theories to problems involving individuals, institutions, or nations
- AN 1111 - Introduction to Cultural Anthropology (4)
- AN 1511 - Human Evolution and Archaeology (4)
- AN 3110 - Culture, Society and Technology (4)
- COM 2400 - Relational Communication (4)
- JMS 2600 - Media and Social Identity (4)
- ECN 1500 - Economics in Today's World (4)
- ECN 2000 - Principles of Macroeconomics (4)
- ECN 2010 - Principles of Microeconomics (4)
- ECN 2010H - Principles of Microeconomics (4)
- ECN 2020 - Principles of Global Macroeconomics (4)
- EHS 1100 - Healthy Workplace: Protecting People and the Environment (3)
- ISE 1170 - Learning How to Learn (4)
- LIN 1185 - Language and Gender (4) (Also meets U.S. Diversity)
- PH 3000 - Introduction to Public Health (3)
- PS 1100 - Introduction to American Politics (4) (Also meets U.S. Diversity)
- PS 1400 - Comparative Politics (4) (Also meets Writing Intensive in Gen Ed)
- PS 1600 - Issues in World Politics (4)
- PS 3215 - The Politics of Race and Ethnicity (4) (Also meets U.S. Diversity and Writing Intensive in Gen Ed)
- PSY 1000 - Introduction to Psychology (4)
- SOC 1000 - Introduction to Sociology (4) (Also meets U.S. Diversity)

- SOC 1010 - Introduction to Sociology through Health and Medicine (4)
- SOC 2100 - Self and Society (4)
- WGS 1000 - Introduction to Women and Gender Studies (4) (Also meets U.S. Diversity)
- WGS 3010 - Introduction to LGBTQ Studies (4)
- WGS 3810 - Global Women, Global Issues (4)

Western Civilization

The Western Civilization area prepares students to demonstrate:

- knowledge of the historical events and/or philosophical ideas of European or American culture
- knowledge of how Western ideas or institutions have evolved over time
- AN 3110 - Culture, Society and Technology (4)
- COM 2202 - Persuasion and Social Change (4)
- JMS 3607 - Rise of Electronic Media (4)
- FRH 1600 - Texts from the French and Francophone World (pre-1800) (4)
- FRH 1610 - Texts from the French and Francophone World (post-1800) (4)
- HST 1100 - Introduction to American History Before 1877 (4) (Also meets U.S. Diversity)
- HST 1200 - Introduction to American History Since 1877 (4) (Also meets U.S. Diversity)
- HST 1300 - Europe in Global Context to 1600 (4)
- HST 1400 - Europe in Global Context from 1600 to the Present (4)
- HST 2280 - History of the African-American People (4) (Also meets U.S. Diversity)
- HST 2380 - Science and Technology in Western Culture (4)
- LBS 1000 - Exploration of the Arts and Sciences (4)
- MGT 2350 - Commerce in Western Civilization (3)
- ML 1400 - Holocaust and European Literature (4)
- MUS 1003 - Music, Culture and Western Civilization (4)
- PHL 1100 - Introduction to Philosophy (4)
- PHL 1300 - Introduction to Ethics (4)
- PHL 1310 - Introduction to Ethics in Science and Engineering (4)
- PHL 1320 - Introduction to Ethics for Healthcare Professions (4)
- PHL 1330 - Introduction to Ethics in Criminal Justice (4)

- PHL 3500 - Clinical Ethics (4)
- PHL 3880 - Animal Minds and Morals (4)
- PS 3050 - Communism (4) (Also meets Writing Intensive in Gen Ed)
- WRT 3020 - History of Rhetoric (4)

Writing Intensive

Writing Intensive in General Education

Notes

Writing Intensive in the Major and Writing Intensive in General Education courses may also satisfy other areas within the general education program.

Writing Intensive requirements cannot be met with WRT 1050 or WRT 1060.

Students must have earned a grade of C in the Writing Foundations course to enroll in a Writing Intensive course.

Students may not apply non-classroom experience (course competency, Advanced Placement, International Baccalaureate, and/or CLEP credits) to satisfy general education requirements for Writing Intensive courses.

- AH 2100 - Concepts of Modern and Postmodern Art (4)
- AH 3000 - Critical Thinking and Writing in Art History II (4)
- AH 3080 - Latin American Art (4)
- AH 3420 - Modern Art 1900-1960 (4)
- AH 3430 - Art Since 1960 (4)
- AH 4998 - Senior Thesis in Art History I (4)
- AH 4999 - Senior Thesis in Art History II (4)
- BE 4999 - Research Project/Capstone Design (4)
- BIO 3000 - Biology and Society (4)
- BIS 3000 - Introduction to Interdisciplinary Studies (4)
- CDS 2070 - Health Care Systems Around the World (3)
- CHM 3000 - Chemistry, Society Health (4)
- COM 3300 - Communication, Culture, and Belonging (4)
- COM 3405 - Gender Communication (4)
- CW 2000 - Creative Writing for Non-Majors (4)

- CW 2500 - Introduction to Memoir and Essay (4)
- DAN 3380 - Contemporary Dance History: Revolution and Revisionism (4)
- ECN 3260 - International Economic Development (3)
- EED 3001 - Managing the Classroom Community for U.S. Diverse Learners (4)
- ENG 3110 - Advanced Critical Writing (4)
- ENV 3540 - Global Environmental Governance (4)
- EXS 4715 - Integrated Laboratory in Exercise Science (3)
- HS 3500 - Health Behavior Theories (3)
- HS 4450 - Laughter as Therapeutic Modality (3)
- HST 3315 - Science and Medicine in the Ancient World (4)
- HST 3340 - The Italian Renaissance (4)
- HST 3350 - The Scientific Revolution (4)
- IS 2300 - Perspectives on Africa (4)
- IS 2400 - Perspectives on India (4)
- IS 2500 - Perspectives on Latin America (4)
- IS 2600 - Perspectives on Russia and Eastern Europe (4)
- IS 2700 - Perspectives on the Middle East (4)
- IS 3001 - The Global Citizen (4)
- JMS 2000 - Introduction to Journalism (4)
- JMS 3290 - Diversity and Media Storytelling (4)
- JMS 4120 - Solutions News Bureau (4)
- LIB 2500 - Introduction to Library Research and Technology in the Information Age (4)
- LBS 2000 - Interdisciplinary Approaches to Liberal Studies (4)
- LBS 4999 - Senior Thesis II (4)
- LIN 4470 - The History of Linguistics (4)
- MGT 1100 - Contemporary World Business (4)
- MGT 4350 - Management Strategies and Policies (3)
- PHL 2100 - Fact, Value, and Knowledge (4)
- PHL 2200 - Ancient Greek Philosophy (4)

- PHL 2210 - Medieval Philosophy (4)
- PHL 2220 - Early Modern Philosophy (4)
- PHL 3110 - Freedom, Agency, and Responsibility (4)
- PHL 3300 - Ethical Theory (4)
- PHL 3310 - Ethics, Language and Reality (4)
- PHL 3400 - Metaphysics (4)
- PHL 3420 - Theories of Truth (4)
- PHL 3500 - Clinical Ethics (4)
- PHL 3830 - Philosophy of Artificial Intelligence (4)
- PHL 4100 - Philosophy of Language (4)
- PS 1400 - Comparative Politics (4)
- PS 3050 - Communism (4)
- PS 3215 - The Politics of Race and Ethnicity (4)
- PS 3310 - American Public Policy (4)
- PS 3730 - Global Environmental Governance (4)
- PSY 3040 - Animal Behavior (4)
- PSY 3160 - Cognitive Psychology (4)
- PSY 3180 - Biological Psychology (4)
- PSY 3210 - Child Development (4)
- PSY 3220 - Adolescence and Youth (4)
- PSY 3230 - Adulthood and Aging (4)
- PSY 3300 - Social Cognition (4)
- PSY 3330 - Motivation (4)
- PSY 3390 - Emotion (4)
- PSY 3430 - Child Psychopathology (4)
- PSY 3440 - Behavior Analysis (4)
- PSY 3450 - Health Psychology (4)
- PSY 3500 - Introduction to Psychometrics (4)
- PSY 4989 - History of Psychology (4)

- REL 1150 - Introduction to Islam (4)
- REL 1200 - Introduction to Judaism (4)
- WRT 2065 - Persuasive Writing: Various Themes (4)
- SOC 4970 - Applying the Sociological Imagination (4)
- THA 3001 - Theatre History I (4)
- THA 3002 - Theatre History II (4)
- THA 3006 - Cultural and Historical Development of American Musical Theatre (4)
- WGS 4810 - Sexual Orientation, Gender Identity and Education (4)
- WRT 2088 - Technical Writing (4)
- WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies (4)
- WRT 3020 - History of Rhetoric (4)
- WRT 3030 - Literacy, Technology, and Civic Engagement (4)
- WRT 3060 - Cross-Cultural Rhetorics (4)
- WRT 3062 - Writing Center Studies and Tutoring Practice (4)
- WRT 3064 - Writing About Culture: Ethnography (4)
- WRT 3070 - Digital Identity and Culture (4)
- WRT 3071 - Podcasting (4)
- WRT 3072 - Rhetoric of Web Design (4)
- WRT 3074 - Digital Writing in Gaming Culture (4)
- WRT 3081 - Public Writing About Science (4)
- WRT 3082 - Business Writing (4)
- WRT 3084 - Race, Social Justice, and Professional Writing (4)
- WRT 3086 - Workshop in Creative Non-Fiction (4)
- WRT 4908 - Special Topics in Professional Writing (4)
- WRT 4996 - Independent Study (1 TO 4)
- WRT 4998 - Capstone (4)

Writing Intensive in the Major

Notes

Writing Intensive in the Major and Writing Intensive in General Education courses may also satisfy other areas within the general education program.

Writing Intensive requirements cannot be met with WRT 1050 or WRT 1060.

Students must have earned a grade of C in the Writing Foundations course to enroll in a Writing Intensive course.

Students may not apply non-classroom experience (course competency, Advanced Placement, International Baccalaureate, and/or CLEP credits) to satisfy general education requirements for Writing Intensive courses.

Students must complete the Writing intensive in the Major requirement at Oakland University

- AH 2000 - Critical Thinking and Writing in Art History I (4)
- AH 2100 - Concepts of Modern and Postmodern Art (4)
- AH 3000 - Critical Thinking and Writing in Art History II (4)
- AH 3080 - Latin American Art (4)
- AH 3120 - Greek Art (4)
- AH 3130 - Roman Art (4)
- AH 3420 - Modern Art 1900-1960 (4)
- AH 3430 - Art Since 1960 (4)
- AH 3530 - History and Theory of Graphic Design (4)
- AH 4998 - Senior Thesis in Art History I (4)
- AH 4999 - Senior Thesis in Art History II (4)
- AN 4391 - Anthropological Theory (4)
- ART 2000 - Critical Theory and Practice in Art (4)
- BCM 4257 - Biochemistry Laboratory (3)
- BIO 3000 - Biology and Society (4)
- BIO 3920 - Directed Readings in Biology (1 TO 4)
- BIO 4970 - Scientific Inquiry and Communication (4)
- BIO 4972 - Integrative Biomedicine and Disease (4)
- BIS 4930 - Interdisciplinary Research (4)
- CHM 3000 - Chemistry, Society Health (4)
- CHM 3480 - Physical Chemistry Laboratory (2)

- CHM 4257 - Biochemistry Laboratory (3)
- FLM 4900 - Advanced Topics in Film (4)
- FLM 4999 - Filmmaking Thesis (4)
- COM 3300 - Communication, Culture, and Belonging (4)
- COM 4200 - Rhetorical Criticism in Communication (4)
- COM 4901 - Senior Research Seminar (4)
- COM 4930 - Community Field Experience (4)
- COM 4950 - Internship (4)
- COM 4970 - Communication Capstone (4)
- CRJ 4950 - Internship in Criminal Justice (4)
- CRJ 4970 - Capstone: Criminal Justice Policy Analysis (4)
- CSI 4999 - Senior Capstone Project (4)
- CW 4200 - Advanced Workshop in Fiction (4)
- CW 4300 - Advanced Workshop in Poetry (4)
- CW 4400 - Advanced Screenwriting (4)
- CW 4450 - Advanced Television Writing (4)
- CW 4500 - Advanced Workshop Memoir and Essay (4)
- DAN 3380 - Contemporary Dance History: Revolution and Revisionism (4)
- ECE 4999 - Senior Design (4)
- ECN 1600 - Introduction to the Global Economy (4)
- ECN 4050 - Econometrics (3)
- ECN 4090 - Urban and Regional Economics (3)
- ECN 4180 - Seminar in Economic Policy (3)
- ECN 4210 - Monetary Economics (3)
- ECN 4560 - Public Finance (3)
- EED 2000 - Teaching, Learning, and Schools (3)
- EED 2001 - Advanced Exploration of K-8 Teaching (2)
- EED 3001 - Managing the Classroom Community for U.S. Diverse Learners (4)
- EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion (3)

- ENG 4900 - Capstone Seminar: Topics in Literature and Language (4)
- ENG 4970 - Capstone Seminar: Literary Kinds (4)
- ENG 4975 - Capstone Seminar: Trans-Atlantic Traditions (4)
- ENG 4980 - Capstone Seminar: Major Authors (4)
- ENG 4985 - Capstone Seminar: Shakespeare (4)
- EHS 4460 - Industrial and Environmental Toxicology (3)
- ENV 3540 - Global Environmental Governance (4)
- ENV 4460 - Industrial and Environmental Toxicology (3)
- ENV 4950 - Environmental Science Internship (3)
- EXS 4715 - Integrated Laboratory in Exercise Science (3)
- FLM 2150 - Methods of Screen Criticism (4)
- FRH 3180 - French Creative Writing (4)
- FRH 4160 - French Literature from the Middle Ages through the Sixteenth Century (4)
- FRH 4170 - French Literature - Seventeenth and Eighteenth Centuries (4)
- FRH 4190 - French Literature - Nineteenth Century (4)
- FRH 4200 - Modern and Contemporary French Literature (4)
- FRH 4970 - Undergraduate Seminar (2 OR 4)
- GRM 3180 - German Composition (2)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- HRD 4950 - Internship in HRD (4)
- HS 3500 - Health Behavior Theories (3)
- HS 4450 - Laughter as Therapeutic Modality (3)
- HS 4500 - Ethics in Health Care (4)
- HST 3000 - Seminar in Historical Research (4)
- HST 3010 - Historical Thinking and Writing (4)
- ISE 4491 - Senior Design (4)
- JMS 2000 - Introduction to Journalism (4)
- JMS 3290 - Diversity and Media Storytelling (4)
- JMS 4120 - Solutions News Bureau (4)

- JMS 4950 - Journalism Internship (4)
- JPN 3180 - Japanese Composition (4)
- JPN 4200 - Modern and Contemporary Japanese Literature (4)
- LBS 2000 - Interdisciplinary Approaches to Liberal Studies (4)
- LBS 4999 - Senior Thesis II (4)
- LIN 4335 - Psycholinguistics (4)
- LIN 4470 - The History of Linguistics (4)
- ME 4999 - Senior Mechanical Engineering Design Project (4)
- MGT 4350 - Management Strategies and Policies (3)
- MTH 4114 - History of Mathematics (4)
- MUS 3211 - Musical Analysis and Form (4)
- MUS 3212 - Counterpoint (4)
- MUS 3331 - History and Literature of Medieval and Renaissance Music (3)
- MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present (3)
- MUS 4210 - Analysis of Music Since 1900 (4)
- MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis (4)
- MUS 4323 - Berlin's Musical Cultures: 1900-1989 (4)
- MUS 4330 - Seminar in Opera and Drama (4)
- MUS 4431 - Teaching Music in the 21st Century I (3)
- NRS 3012 - Research for Evidence-Based Nursing Practice (3)
- NRS 3071 - Research Basis of Nursing Practice (4)
- NTR 4500 - Professional Practice and Ethics in Nutrition (3)
- PHL 2100 - Fact, Value, and Knowledge (4)
- PHL 2200 - Ancient Greek Philosophy (4)
- PHL 2210 - Medieval Philosophy (4)
- PHL 2220 - Early Modern Philosophy (4)
- PHL 3110 - Freedom, Agency, and Responsibility (4)
- PHL 3300 - Ethical Theory (4)
- PHL 3310 - Ethics, Language and Reality (4)

- PHL 3400 - Metaphysics (4)
- PHL 3420 - Theories of Truth (4)
- PHL 3500 - Clinical Ethics (4)
- PHL 3830 - Philosophy of Artificial Intelligence (4)
- PHL 4100 - Philosophy of Language (4)
- PHY 4970 - Undergraduate Seminar (3)
- PHY 4995 - Independent Research (3 TO 6)
- PS 3005 - Western Political Thought I (4)
- PS 3010 - Western Political Thought II (4)
- PS 3020 - American Political Thought (4)
- PS 3040 - International Politics: Theory and Practice (4)
- PS 3050 - Communism (4)
- PS 3070 - Politics Through Literature (4)
- PS 3215 - The Politics of Race and Ethnicity (4)
- PS 3305 - Public Administration (4)
- PS 3310 - American Public Policy (4)
- PS 3425 - The Russian Political System (4)
- PS 3715 - Gender and Int'l Relations (4)
- PS 3730 - Global Environmental Governance (4)
- PSY 3160 - Cognitive Psychology (4)
- PSY 3180 - Biological Psychology (4)
- PSY 3210 - Child Development (4)
- PSY 3220 - Adolescence and Youth (4)
- PSY 3230 - Adulthood and Aging (4)
- PSY 3300 - Social Cognition (4)
- PSY 3330 - Motivation (4)
- PSY 3390 - Emotion (4)
- PSY 3430 - Child Psychopathology (4)
- PSY 3440 - Behavior Analysis (4)

- PSY 3450 - Health Psychology (4)
- PSY 3500 - Introduction to Psychometrics (4)
- PSY 4989 - History of Psychology (4)
- SED 3000 - Introduction to Secondary Education (1 TO 4)
- SED 3001 - Public Education for Prospective K-12 Teachers (2)
- SOC 3220 - Social Welfare Policies (4)
- SOC 4970 - Applying the Sociological Imagination (4)
- SPN 4080 - Advanced Spanish Conversation and Composition (4)
- SPN 4160 - Spanish Literature - Fifteenth and Sixteenth Centuries (4)
- SPN 4170 - Spanish Literature - Seventeenth Century (4)
- SPN 4180 - Cervantes (4)
- SPN 4190 - Spanish Literature - Eighteenth and Nineteenth Centuries (4)
- SPN 4200 - Modern and Contemporary Spanish Literature (4)
- SPN 4880 - Spanish-American Literature before 1888 (4)
- SPN 4890 - Spanish-American Literature after 1888 (4)
- STA 4002 - Applied Linear Models I (4)
- SW 3302 - Social Welfare Policies (4)
- SW 4971 - Social Work Seminar II (4)
- THA 3001 - Theatre History I (4)
- THA 3002 - Theatre History II (4)
- WGS 4020 - Women and Gender Studies Capstone Course (4)
- WRT 2065 - Persuasive Writing: Various Themes (4)
- WRT 2088 - Technical Writing (4)
- WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies (4)
- WRT 3020 - History of Rhetoric (4)
- WRT 3030 - Literacy, Technology, and Civic Engagement (4)
- WRT 3060 - Cross-Cultural Rhetorics (4)
- WRT 3062 - Writing Center Studies and Tutoring Practice (4)
- WRT 3064 - Writing About Culture: Ethnography (4)

- WRT 3070 - Digital Identity and Culture (4)
- WRT 3071 - Podcasting (4)
- WRT 3074 - Digital Writing in Gaming Culture (4)
- WRT 3084 - Race, Social Justice, and Professional Writing (4)
- WRT 3086 - Workshop in Creative Non-Fiction (4)
- WRT 4908 - Special Topics in Professional Writing (4)
- WRT 4996 - Independent Study (1 TO 4)
- WRT 4998 - Capstone (4)

Integration Area

Knowledge Applications

The Knowledge Applications area prepares students to demonstrate:

- how knowledge in a field outside of the student's major can be evaluated and applied to solve problems across a range of applications
- knowledge of the personal, professional, ethical, and societal implications of these applications

Notes

Knowledge Applications courses must be outside the rubric of the student's major.

- AH 2200 - Introduction to the History of Western Architecture (4) Prereq: Arts
- AH 3000 - Critical Thinking and Writing in Art History II (4) Prereq: Arts (Also meets Writing Intensive in General Education)
- AH 3110 - Art of the Ancient Near East (4) Prereq: Arts
- AH 3120 - Greek Art (4) Prereq: Arts
- AH 3130 - Roman Art (4) Prereq: Arts
- AMS 3000 - Topics in American Culture (4) Prereq: Western Civilization (Also meets U.S. Diversity)
- AN 3127 - Racial and Ethnic Relations (4) Prereq: Social Science (Also meets U.S. Diversity)
- AN 3560 - Historical Archaeology (4) Prereq: Social Science (Also meets U.S. Diversity)
- APM 1663 - Mathematics for Information Technology (4) Prereq: Formal Reasoning or Natural Science and Technology
- ARB 2140 - Second Year Arabic I (4) Prereq: Language and Culture
- ARB 2150 - Second Year Arabic II (4) Prereq: Language and Culture

- ART 1150 - Drawing for Non-Majors (4) Prereq: Arts
- ART 1160 - Photography for Non-Majors (4) Prereq: Arts
- ART 1170 - Painting for Non-Majors (4) Prereq: Arts
- CHE 2140 - Second Year Chinese I (4) Prereq: Language and Culture
- CHE 2150 - Second Year Chinese II (4) Prereq: Language and Culture
- COM 1000 - Introduction to Communication Studies (4) Prereq: Social Science
- COM 2000 - Public Speaking (4) Prereq: Social Science
- COM 2500 - American Sign Language III (4)
- COM 2501 - American Sign Language IV (4)
- CW 2000 - Creative Writing for Non-Majors (4) (Also meets Writing Intensive in General Education)
- ECN 3030 - Managerial Economics (3) Prereq: Formal Reasoning and Social Science
- ENG 3520 - African American Literature (4) Prereq: Literature (Also meets U.S. Diversity)
- ENG 3640 - Biography (4) Prereq: Western Civilization
- ENG 3675 - Adaptation: Fiction, Drama, Film (4) Prereq: Literature
- ENV 3540 - Global Environmental Governance (4) Prereq: Social Science (Also meets Writing Intensive in General Education)
- FLM 1400 - Filmmaking for Non-Majors (4) Prereq: Arts
- FLM 3305 - Adaptation: Fiction, Drama, Film (4) Prereq: Literature
- FRH 2140 - Second Year French I (4) Prereq: Language and Culture
- FRH 2150 - Second Year French II (4) Prereq: Language and Culture
- GRM 2140 - Second Year German I (4) Prereq: Language and Culture
- GRM 2150 - Second Year German II (4) Prereq: Language and Culture
- HBR 2140 - Second Year Hebrew I (4) Prereq: Language and Culture
- HBR 2150 - Second Year Hebrew II (4) Prereq: Language and Culture
- HRD 3230 - Fundamentals of Human Interaction (4) Prereq: Writing Intensive in General Education or Social Science
- HRD 3330 - Presentation and Facilitation (4) Prereq: Writing Intensive in General Education or Social Science

- HRD 3600 - Lean Principles and Practices in Organizations (4) Prereq: Writing Intensive in General Education or Social Science
- HRD 4510 - Negotiation for Personal Success (4) Prereq: Social Science
- HRD 4600 - Lean Kaizen in Organizations (4) Prereq: Social Science
- HS 3500 - Health Behavior Theories (3)
- HS 4450 - Laughter as Therapeutic Modality (3) Prereq: Natural Science and Technology or Social Science (Also meets Writing Intensive in General Education)
- IS 3001 - The Global Citizen (4) Prereq: Global Perspective (Also meets Writing Intensive in General Education)
- IS 3002 - Globalization and the International System (4) Prereq: Global Perspective
- IT 2140 - Second Year Italian I (4) Prereq: Language and Culture
- IT 2150 - Second Year Italian II (4) Prereq: Language and Culture
- ISE 1150 - How Things Work (4) Prereq: Writing Foundations
- JMS 2000 - Introduction to Journalism (4) Prereq: Writing Foundations
- JPN 2140 - Second Year Japanese I (4) Prereq: Language and Culture
- JPN 2150 - Second Year Japanese II (4) Prereq: Language and Culture
- LIB 2500 - Introduction to Library Research and Technology in the Information Age (4) Prereq: Writing Foundations
- MTH 1555 - Calculus II (4) Prereq: Formal Reasoning
- MUS 2020 - Computer-based Music Composition (4) Prereq: Arts
- MUS 2025 - Exploring Songwriting (4) Prereq: Arts
- NRS 3081 - Human Sexuality (4) Prereq: Natural Science and Technology or Social Science (Also meets U.S. Diversity)
- NRS 4015 - Nursing Care of Communities and Populations (0 OR 5) Prereq: Global Perspective (Also meets U.S. Diversity)
- PHL 2100 - Fact, Value, and Knowledge (4) Prereq: Formal Reasoning (Also meets Writing Intensive in General Education)
- PHL 2200 - Ancient Greek Philosophy (4) Prereq: Western Civilization (Also meets Writing Intensive in General Education)
- PHL 2210 - Medieval Philosophy (4) Prereq: Western Civilization (Also meets Writing Intensive in General Education)

- PHL 2220 - Early Modern Philosophy (4) Prereq: Western Civilization (Also meets Writing Intensive in General Education)
- PHL 3000 - Advanced Symbolic Logic (4) Prereq: Formal Reasoning
- PHL 3300 - Ethical Theory (4) Prereq: Western Civilization (Also meets Writing Intensive in Gen Ed or Writing Intensive in the Major)
- PHL 3310 - Ethics, Language and Reality (4) Prereq: Western Civilization (Also meets Writing Intensive in General Education or Writing Intensive in the Major)
- PHL 3400 - Metaphysics (4) Prereq: Formal Reasoning (Also meets Writing Intensive in General Education or Writing Intensive in the Major)
- PHL 3420 - Theories of Truth (4) Prereq: Western Civilization (Also meets Writing Intensive in General Education or Writing Intensive in the Major)
- PHL 3500 - Clinical Ethics (4)
- PHL 3830 - Philosophy of Artificial Intelligence (4) Prereq: Formal Reasoning (Also meets Writing Intensive in General Education or Writing Intensive in the Major)
- PHL 4100 - Philosophy of Language (4) Prereq: Formal Reasoning
- PHY 1020 - General Physics II (4) Prereq: Natural Science and Technology
- PHY 1090 - Principles of Physics II (4) Prereq: Natural Science and Technology
- PHY 1520 - Introductory Physics II (4) Prereq: Formal Reasoning or Natural Science and Technology
- PHY 1620 - Fundamentals of Physics II (4) Prereq: Natural Science and Technology
- PS 3730 - Global Environmental Governance (4) Prereq: Social Science (Also meets Writing Intensive in General Education)
- PSY 2250 - Introduction to Life-Span Developmental Psychology (4) Prereq: Social Science
- QMM 2400 - Statistical Methods for Business I (3) Prereq: Formal Reasoning
- QMM 2400H - Statistical Methods for Business I (3) Prereq: Formal Reasoning
- QMM 2410 - Statistical Methods for Business II (3) Prereq: Formal Reasoning
- QMM 2410H - Statistical Methods for Business II (3) Prereq: Formal Reasoning
- REL 3140 - Religion in the Modern World (4) Prereq: Social Science or Global Perspective
- REL 3750 - Science and Religion (4) Prereq: Natural Science and Technology
- SOC 3610 - Racial and Ethnic Relations (4) Prereq: Social Science (Also meets U.S. Diversity)
- SPN 2140 - Second Year Spanish I (4) Prereq: Language and Culture
- SPN 2150 - Second Year Spanish II (4) Prereq: Language and Culture

- WGS 3826 - Historical Archaeology (4) Prereq: Social Science (Also meets U.S. Diversity)
- WRT 2088 - Technical Writing (4) Prereq: Writing Foundations (Also meets Writing Intensive in Gen Ed or Writing Intensive in the Major)
- WRT 3020 - History of Rhetoric (4) Prereq: Writing Foundations (Also meets Writing Intensive in General Education)
- WRT 3062 - Writing Center Studies and Tutoring Practice (4) Prereq: Writing Foundations (Also meets Writing Intensive in General Education)
- WRT 3064 - Writing About Culture: Ethnography (4) Prereq: Writing Foundations (Also meets U.S. Diversity and Writing Intensive in General Education)
- WRT 3082 - Business Writing (4) Prereq: Writing Foundations (Also meets Writing Intensive in General Education)
- WRT 3086 - Workshop in Creative Non-Fiction (4) Prereq: Writing Foundations (Also meets Writing Intensive in General Education or Writing Intensive in the Major)
- WRT 4908 - Special Topics in Professional Writing (4) Prereq: Writing Foundations (Also meets Writing Intensive in General Education or Writing Intensive in the Major)
- WRT 4996 - Independent Study (1 TO 4)

Capstone

The Capstone course prepares students to demonstrate:

- appropriate uses of a variety of methods of inquiry and a recognition of ethical considerations that arise
- the ability to integrate the knowledge learned in general education and its relevance to the student's life and career

Notes

Requirement may be met by an approved course in the major or an approved course outside of the major.

Students must complete the Capstone requirement at Oakland University.

- ACS 4550 - Financial Mathematics (3)
- AH 4998 - Senior Thesis in Art History I (4)
- AH 4999 - Senior Thesis in Art History II (4)
- AN 4391 - Anthropological Theory (4)
- APM 4550 - Risk Management (3)
- ART 4999 - Senior Thesis in Studio Art (4)

- BE 4999 - Research Project/Capstone Design (4)
- BCM 4257 - Biochemistry Laboratory (3)
- BIO 4970 - Scientific Inquiry and Communication (4)
- BIO 4972 - Integrative Biomedicine and Disease (4)
- BIS 4930 - Interdisciplinary Research (4)
- CHM 4257 - Biochemistry Laboratory (3)
- CHM 4996 - Independent Research (3)
- FLM 4900 - Advanced Topics in Film (4)
- FLM 4901 - Advanced Topics in Film Theory (4)
- FLM 4999 - Filmmaking Thesis (4)
- COM 4901 - Senior Research Seminar (4)
- COM 4930 - Community Field Experience (4)
- COM 4950 - Internship (4)
- COM 4970 - Communication Capstone (4)
- CRJ 4970 - Capstone: Criminal Justice Policy Analysis (4)
- CSI 4999 - Senior Capstone Project (4)
- CW 4200 - Advanced Workshop in Fiction (4)
- CW 4300 - Advanced Workshop in Poetry (4)
- CW 4400 - Advanced Screenwriting (4)
- CW 4450 - Advanced Television Writing (4)
- CW 4500 - Advanced Workshop Memoir and Essay (4)
- DAN 3500 - Choreography III (4)
- DES 4999 - Senior Thesis in Graphic Design (4)
- ECE 4999 - Senior Design (4)
- ECN 4090 - Urban and Regional Economics (3)
- ECN 4180 - Seminar in Economic Policy (3)
- ECN 4210 - Monetary Economics (3)
- ECN 4500 - Risk Management (3)
- ECN 4560 - Public Finance (3)

- EED 4950 - Internship in Elementary Education (9 to 12)
- ENG 4900 - Capstone Seminar: Topics in Literature and Language (4)
- ENG 4970 - Capstone Seminar: Literary Kinds (4)
- ENG 4975 - Capstone Seminar: Trans-Atlantic Traditions (4)
- ENG 4980 - Capstone Seminar: Major Authors (4)
- ENG 4985 - Capstone Seminar: Shakespeare (4)
- ENV 4950 - Environmental Science Internship (3)
- EXS 4715 - Integrated Laboratory in Exercise Science (3)
- EXS 4960 - Practicum in Exercise Science (3)
- FRH 4160 - French Literature from the Middle Ages through the Sixteenth Century (4)
- FRH 4170 - French Literature - Seventeenth and Eighteenth Centuries (4)
- FRH 4190 - French Literature - Nineteenth Century (4)
- FRH 4200 - Modern and Contemporary French Literature (4)
- FRH 4970 - Undergraduate Seminar (2 OR 4)
- GRM 4130 - German Literature from the Middle Ages through the Seventeenth Century (4)
- GRM 4180 - German Literature - Eighteenth Century (4)
- GRM 4190 - German Literature - Nineteenth Century (4)
- GRM 4200 - Modern and Contemporary German Literature (4)
- GRM 4970 - Undergraduate Seminar (2 OR 4)
- HRD 4950 - Internship in HRD (4)
- HS 4500 - Ethics in Health Care (4)
- HST 4980 - Historical Research Seminar (4)
- IS 4995 - Directed Research in International Studies (2 TO 8)
- ISE 4491 - Senior Design (4)
- JMS 4120 - Solutions News Bureau (4)
- JMS 4950 - Journalism Internship (4)
- JPN 4200 - Modern and Contemporary Japanese Literature (4)
- LBS 4999 - Senior Thesis II (4)
- LIN 4470 - The History of Linguistics (4)

- ME 4999 - Senior Mechanical Engineering Design Project (4)
- MGT 4350 - Management Strategies and Policies (3)
- MTH 4114 - History of Mathematics (4)
- MUA 4998 - Senior Recital (4)
- MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis (4)
- MUS 4323 - Berlin's Musical Cultures: 1900-1989 (4)
- MUS 4330 - Seminar in Opera and Drama (4)
- MUS 4431 - Teaching Music in the 21st Century I (3)
- MUS 4952 - Internship in K-12 Music Education (4 TO 12)
- MUS 4998 - Senior Project: Music Technology and Recording (3)
- NRS 4026 - Nursing Capstone (4)
- NRS 4585 - Nursing Capstone Experience (4)
- NTR 4500 - Professional Practice and Ethics in Nutrition (3)
- PHL 4970 - Seminar on a Philosophical Topic (4)
- PHY 4970 - Undergraduate Seminar (3)
- PHY 4995 - Independent Research (3 TO 6)
- PS 4950 - Public Administration Internship (4)
- PS 4955 - Political Science/International Relations Internship (4)
- PS 4970 - Seminar in American Politics (4)
- PS 4975 - Seminar in the Comparative Study of Political Systems (4)
- PS 4980 - Seminar in International Relations (4)
- PSY 4500 - Advanced Research Design in Psychology (4)
- PSY 4921 - Readings and Research Projects (4)
- PSY 4930 - Field Experience in Psychology (4)
- PSY 4971 - Seminar in Cognition, Perception, and Biological Psychology (4)
- PSY 4972 - Seminar in Developmental Psychology (4)
- PSY 4973 - Seminar in Social Psychology (4)
- PSY 4977 - Seminar: Psychopharmacology (4)
- PSY 4978 - Seminar: Cognitive Development in Children (4)

- PSY 4979 - Seminar: Resilient Aging (4)
- PSY 4980 - Seminar: Moral Development (4)
- PSY 4982 - Intergroup Relations (4)
- PSY 4983 - Cognitive Psychology: Theory and Application (4)
- PSY 4989 - History of Psychology (4)
- PSY 4998 - Honors Independent Studies I (4)
- SED 4952 - Internship in Secondary Education (4 TO 12)
- SOC 4970 - Applying the Sociological Imagination (4)
- SPN 4160 - Spanish Literature - Fifteenth and Sixteenth Centuries (4)
- SPN 4170 - Spanish Literature - Seventeenth Century (4)
- SPN 4180 - Cervantes (4)
- SPN 4190 - Spanish Literature - Eighteenth and Nineteenth Centuries (4)
- SPN 4200 - Modern and Contemporary Spanish Literature (4)
- SPN 4880 - Spanish-American Literature before 1888 (4)
- SPN 4890 - Spanish-American Literature after 1888 (4)
- STA 4228 - Introduction to Mathematical Statistics II (4)
- SW 4971 - Social Work Seminar II (4)
- THA 3031 - Stage Manager Project (1)
- THA 4007 - Advanced Directing Project (1)
- THA 4020 - Advanced Performance Projects (1)
- THA 4025 - Advanced Design, Production and Management Project (1)
- THA 4031 - Dramaturgy/Assistant Director Project (1)
- THA 4081 - Classical Theatre Study in Greece (4)
- THA 4095 - Advanced Company Class (1)
- THA 4950 - Internship (1 TO 4)
- WGS 4020 - Women and Gender Studies Capstone Course (4)
- WHP 4950 - Internship in Wellness and Health Promotion (4)
- WRT 4998 - Capstone (4)

U.S. Diversity

U.S. Diversity prepares the student to demonstrate knowledge of how diverse value systems and societal structures in the United States are influenced by at least two of the following: race, gender, and ethnicity identify major challenges and issues these raise in society. Approved diversity courses may double count in the major and/or general education.

Note

U.S. Diversity may be fulfilled through courses that also satisfy the Exploration areas.

- AH 3430 - Art Since 1960 (4) (Also meets Writing Intensive in Gen Ed)
- AMS 3000 - Topics in American Culture (4)
- AN 3127 - Racial and Ethnic Relations (4)
- AN 3260 - Peoples and First Nations of North America (4)
- AN 3560 - Historical Archaeology (4)
- COM 3300 - Communication, Culture, and Belonging (4) (Also meets Writing Intensive in Gen Ed)
- COM 3405 - Gender Communication (4) (Also meets Writing Intensive in Gen Ed)
- CW 2500 - Introduction to Memoir and Essay (4)
- DAN 1375 - World Dance Traditions (4)
- DAN 1377 - Dance in Film (4) (Also meets Arts)
- ECN 3150 - Economics of Gender and Ethnicity (3)
- EED 3001 - Managing the Classroom Community for U.S. Diverse Learners (4) (Also meets Writing Intensive in Gen Ed)
- EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion (3)
- ENG 1500 - Literature of Ethnic America (4)
- ENG 3510 - Selected Ethnic Literature (4)
- ENG 3520 - African American Literature (4)
- FLM 1150 - Introduction to Film (4)
- HRD 3530 - Cultural Diversity in the Workplace (4)
- HST 1100 - Introduction to American History Before 1877 (4)
- HST 1200 - Introduction to American History Since 1877 (4)
- HST 2280 - History of the African-American People (4)
- HST 3140 - History of the American South (4)
- HST 3265 - Women in Modern America (4)

- HST 3275 - History of American Families (4)
- HST 3280 - The Civil Rights Movement in America (4)
- HST 3285 - History of African-American Women (4)
- JMS 3290 - Diversity and Media Storytelling (4)
- LIN 1185 - Language and Gender (4)
- LIN 4374 - Cross-Cultural Communication (4)
- LIN 4375 - Language and Culture (4)
- MUS 1005 - Foundations of Rock (4) (Also meets Arts)
- MUS 1007 - Exploring Jazz (4) (Also meets Arts)
- MUS 1011 - Exploring Caribbean Music (4) (Also meets Arts)
- MUS 1018 - Performing Arts Service Learning (4)
- NRS 3081 - Human Sexuality (4)
- NRS 4015 - Nursing Care of Communities and Populations (0 OR 5)
- NRS 4551 - Population Health (4)
- PH 3000 - Introduction to Public Health (3)
- PS 1100 - Introduction to American Politics (4)
- PS 3215 - The Politics of Race and Ethnicity (4) (Also meets Writing Intensive in Gen Ed)
- SOC 1000 - Introduction to Sociology (4)
- SOC 1010 - Introduction to Sociology through Health and Medicine (4)
- SOC 3610 - Racial and Ethnic Relations (4)
- THA 3006 - Cultural and Historical Development of American Musical Theatre (4) (Also meets Writing Intensive in Gen Ed and Arts)
- WGS 1000 - Introduction to Women and Gender Studies (4)
- WGS 3821 - History of American Families (4)
- WGS 3822 - History of African-American Women (4)
- WGS 3826 - Historical Archaeology (4)
- WGS 3880 - Women in Modern America (4)
- WGS 4810 - Sexual Orientation, Gender Identity and Education (4) (Also meets Writing Intensive in Gen Ed)

- WHP 3700 - Culture, Ethnicity and Well-being (3)
- WRT 3064 - Writing About Culture: Ethnography (4) (Also meets Writing Intensive in Gen Ed)
- WRT 3070 - Digital Identity and Culture (4) (Also meets Writing Intensive in Gen Ed)
- WRT 3084 - Race, Social Justice, and Professional Writing (4)

Notes

Students using this catalog to meet general education requirements may also use any course subsequently approved by the General Education Committee and published in a later catalog to satisfy requirements in a particular area. If a course listed below is removed from lists of approved courses in later catalogs, it may still be used to meet a general education requirement by students following the 2023 - 2024 catalog until the catalog expires (six years).

Transfer students should refer the transfer student page.

Some of the approved courses may not be offered every semester. Students should check with their advisers to ensure that their preferred courses will be offered.

THE END

