BIOCHEMISTRY PROGRAM

Coordinator: *Kathleen H. Moore (Chemistry)*

Biochemistry Committee: *Arthur W. Bull (Chemistry), Denis M. Callewaert (Chemistry), John D. Cowlishaw (Biological Sciences), Esther M. Goudsmit (Biological Sciences), Virinder K. Moudgil (Biological Sciences), Michael D. Sevilla (Chemistry), Satish K. Walia (Biological Sciences)*

This interdepartmental program offers a Bachelor of Science degree with a major in biochemistry. The biochemistry program is based on faculty resources and research facilities in the departments of Biological Sciences and Chemistry. The curriculum is designed to prepare students for a career in biochemical research, graduate study in biochemistry or molecular biology, or professional education in medicine or dentistry.

The specialized research facilities for cellular and analytical biochemistry at Oakland University include tissue culture facilities, an ultracentrifugation laboratory, isotope laboratories with beta and gamma counters, equipment for gas and high pressure liquid chromatography, and GC/MS, UV-vis, fluorescence, NMR, EPR, laser Raman, and atomic absorption spectrometers and other state-of-the-art computerized biochemical instrumentation.

Undergraduate students in the biochemistry program have access to faculty research laboratories and are encouraged to participate in various ongoing research programs such as studies in metabolism, gene expression, hormone action, immunochemistry, molecular biology, and radiation biochemistry. The minimum requirement for a B.S. in biochemistry is 124 credits, including course work in biological sciences (16 credits), chemistry (32 credits), and biochemistry (12 credits) as detailed below. No more than 8 credits of course work used to fulfill the requirements of a major or minor in biology or chemistry may be used to fulfill the requirements of a major in biochemistry.

Admission to major standing

Students may apply for major standing after completion of 18 credits of chemistry and at least 8 credits of biology from the requirements listed below, with a grade point average (GPA) of at least 2.50 in those courses. The biochemistry committee must approve major standing and a detailed plan of study at least three semesters prior to graduation.

Requirements for the Bachelor of Science degree in biochemistry

Students wishing to select the biochemistry major should prepare a detailed plan of study in consultation with a member of the Biochemistry Committee. To earn the Bachelor of Science degree with a major in biochemistry, students must complete:

1. Sixteen or more credits of biology chosen in consultation with the biochemistry program coordinator from the following courses: BIO 190, BIO 200, BIO 319, BIO 320, BIO 321, BIO 322, BIO 323, BIO 324, BIO 341, BIO 345, or BIO 393.
2. Thirty-two credits of chemistry, including CHM 144, CHM 145 (or CHM 164, CHM 165), CHM 149, CHM 203, CHM 204, CHM 209 (or CHM 234, CHM 235, CHM 237), CHM 225, CHM 342, and CHM 343.
3. Twelve or more credits of biochemistry including BCM 453, BCM 454, and CHM 457 and additional credits selected from the following courses: BIO 407, BIO 408, BIO 423, BIO 439, BIO 440, BIO 441, CHM 458, CHM 553, CHM 581, or BCM 490.
4. Corequisites in mathematics (MTH 154 and MTH 155) and physics (PHY 151 and PHY 152). Statistics (STA 226) is a recommended elective.
5. Admission to major standing as described above at least three semesters prior to graduation.

Course Offerings

BCM 453 Biochemistry I (3)
First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates, and lipids. Enzyme mechanisms, kinetics, and regulation. Bioenergetics and catabolism. Identical with CHM 453.
Prerequisite: CHM 204 or CHM 235.

BCM 454 Biochemistry II (3)
Metabolic pathways and control. Nucleic acid structure, function, and processing, including regulation of gene expression. Selected topics in molecular physiology. Identical with CHM 454.
Prerequisite: BCM/CHM 453.

BCM 490 Biochemistry Research (1, 2, 3 or 4)
Laboratory experience in biochemical research requiring at least four hours of work per week per credit. May be repeated for credit. Graded S/U.
Prerequisite: Permission of instructor.

ENVIRONMENTAL HEALTH PROGRAM

Director: *Paul Tomboulian (Chemistry)*

Designed to integrate applied scientific specialties within the broad field of environmental health, the environmental health curricula prepare students for a variety of professional opportunities in government as well as the private sector, and for graduate study in such fields as toxic substance management, public health, toxicology, industrial hygiene and environmental planning.

Graduates of the program should be able to identify and evaluate a broad range of environmental problems. In addition, they should be able to offer solutions, anticipate hazards and prevent future problems. Studies include such areas as health and safety in the work place, toxic substances, air resources, water resources, and public policy.

Requirements for the B.S. degree

To earn a Bachelor of Science degree with a major in environmental health, students must complete:

1. An introductory prerequisite core of a minimum of 38 credits, to be completed with a 2.00 average before major standing is awarded, including BIO 200, CHM 144 (or 164), CHM 145 (or 165), CHM 149, CHM 225, PHY 151, PHY 152 (or, for students not considering graduate work, PHY 101 and PHY 102) and 8 credits in mathematics above MTH 121 or MTH 141, usually including STA 225. MTH 154 is strongly recommended (MTH 155 is recommended for students considering graduate education).
2. Major standing to be awarded three semesters before graduation.
3. A program of a minimum of 50 credits in advanced courses, including ENV 308 plus courses required by one of the three options. At least 36 credits must be in courses at the 300 level or above, and 30 credits must be in approved courses numbered 350 and above. Except for ENV courses, no more than 24 credits in any one course rubric (such as BIO, CHM, etc.) may be used to fulfill the major. At least 16 of the credits taken at the 300 level or above must be taken at Oakland University.
4. Completion of one of the specializations described below. Students desiring to complete two specializations must take 16 credits of non-duplicative course work.

Specialization in occupational health and safety

Based upon an extensive curriculum planning study, this option combines environmental and occupational health perspectives in scientific and technical courses designed to provide preprofessional training for careers relating human health and safety factors to working conditions. Students learn to recognize, evaluate and control actual and potential environmental hazards, especially undesirable occupational health and safety conditions and practices. The option emphasizes environmental and occupational toxicology.

Required course work includes BIO 207 or BIO 321, CHM 203-204, ENV 355, ENV 386, ENV 387, ENV 388, ENV 474, ENV 484 and IHS 311. Recommended electives include ENG 382, ENV 364, ENV 372, ENV 373, ENV 452, ENV 461, ENV 470, ENV 486, BIO 407 or CHM 453, BIO 301, PS 353, HST 302 and IHS 312.

Specialization in environmental and resource management

This option emphasizes the wise use of resources, especially as they affect human health and well-being. Program electives offer training for a variety of field and laboratory opportunities

in industry and government, including planning, resource management, environmental protection and public policy.

Required course work includes the core, plus the following: ENV 355, ENV 461, BIO 301, PHY 107 and PHY 158.

Recommended electives include CHM 203-204, BIO 207 or BIO 321, BIO 303, BIO 311, BIO 307 or BIO 319, BIO 327, BIO 333, BIO 373, BIO 375, BIO 377, BIO 407, BIO 481, ENG 382, ENV 311, ENV 322, ENV 372, ENV 373, ENV 386, ENV 474, ENV 484, PS 302, PS 305, PS 350, PS 353, EGR 407 and HST 384.

Specialization in toxic substance control

This option is designed to provide training for professional opportunities in environmental toxicology, environmental health chemistry, and toxic substance management. The major focus is on toxicological principles and their applications to the production, distribution and release of toxic substances, especially as they may cause environmental problems. Risk assessment, problem solving and legislative compliance are emphasized.

Required course work includes the core plus BIO 301, CHM 203-204, BIO 325 or CHM 453, ENV 461, ENV 484 and ENV 486.

Recommended electives include BIO 207 or BIO 321, BIO 341, BIO 375, BIO 377, CHM 454, CHM 581, ENG 382, ENV 364, ENV 372, ENV 373, ENV 386, ENV 387, ENV 388, ENV 474, and PS 353.

Requirements for the liberal arts minor in environmental health

The following 19 credits are required for this minor: ENV 308, ENV 355, ENV 372 or 373, ENV 461, ENV 484, and ENV 486. An approved Concentration/Minor Authorization Form must be filed three semesters prior to graduation.

Course Offerings

ENV 308 Introduction to Environmental Studies (4)
Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution; human demography and food supplies; alternative futures. *Satisfies the university general education requirement in natural science and technology.*
Prerequisite: Sophomore standing.

ENV 311 Global Environmental Pressures (4)
An interdisciplinary approach to selected problems of environmental stress in major ecosystems of the world. Emphasis is on the Third World's natural resources, in relation to their export to the industrialized societies. May be used in lieu of one of the College of Arts and Sciences' distribution categories.

ENV 312 Energy and the Environment (4)
Basic facts of energy: sources, forms, the roles it plays, and its ultimate fate. Includes study of laws limiting energy utilization, energy flow patterns, effects of energy use on the environment, and analyses of current energy-related problems.
Prerequisite: Sophomore standing; mathematics proficiency at the MTH 011 level.

ENV 322 Subsistence and Technology in Nonindustrial Society (4)
Identical with AN 322.

ENV 350 Selected Topics (1, 2, 3 or 4)
Technical studies in special areas; topics vary with semester. May be repeated for credit.
Prerequisite: Junior standing and permission of instructor.

ENV 355 Environmental Health Practice (3)
Survey of environmental health activities from public health perspective: vector control and prevention, sanitation practice, solid waste management, air pollution control, environmentally related diseases and their prevention.
Prerequisite: Junior standing in environmental health.

ENV 364 Hazardous Materials Emergency Response (3)
Review of standard operating procedures when dealing with responses to hazardous materials incidents. Planning procedures, policies, and application of procedures for incident levels, personal protective equipment, decontamination, safety, communications, and governmental reporting are stressed.
Prerequisite: Junior standing in environmental health.

ENV 372 Air Chemistry (3)
Technical evaluation of the nature and composition of the earth's atmosphere, both in its natural state and as it has been affected by man. Some discussion of air pollution control will be included.
Prerequisite: CHM 145 (or 165).

ENV 373 Water Resources (3)
Analysis of natural water systems, introductory hydrology, the chemistry of eutrophication, and wastewater systems. Emphasis is on applications, including water pollution abatement and management strategies.
Prerequisite: CHM 145 (or 165) and junior standing.

ENV 386 Principles of Occupational Health I (3)
Recognition, evaluation and control of chemical and physical stresses in the workplace which may adversely affect human health.

ENV 387 Principles of Occupational Health II (3)
Selected subjects of current interest in occupational and environmental health and review of occupational health programs at local industrial companies through site visits.

ENV 388 Occupational Health Control Methods (3)
Theory and practice in the control of occupational health hazards including personal protective equipment, noise, radiation, ventilation, and engineering design.

ENV 390 Directed Studies (1, 2, 3, 4 or 6)
Studies in special areas, often individually arranged. May be repeated for credit. Preparation of study plan and instructor's approval are required before registration. Graded S/U.

ENV 410 Human Adaptation (4)
Identical with AN 410.

ENV 452 Industrial Environmental Control (3)
Problems of air and water pollution, solid waste management, hazardous material handling, and emergencies examined from an industrial viewpoint. Chemical engineering solutions to environmental problems, practical aspects and compliance with regulations.
Prerequisite: Junior standing in environmental health, CHM 145 (or 165), MTH 154.

ENV 461 Environmental Law and Policies (3)
Legislative and legal perspectives on environmental and occupational health issues. Special emphasis on current laws and regulations, as well as their impact on the groups regulated.
Prerequisite: Junior standing.

ENV 470 Environmental Health Internship (2)
Supervised practical experiences in a variety of environmental health settings. Graded S/U.
Prerequisite: Senior standing in environmental health and permission of instructor.

ENV 474 Evaluation of Occupational Health Hazards (3)
Sampling and analysis of occupational health hazards and evaluation of the effectiveness of industrial hygiene control methods in laboratory and field locations.

ENV 484 Environmental Toxicology (3)
Principles of toxicology applied to a variety of biological systems: exposure, toxokinetic, and toxodynamic phases; dose-effect relationships; factors influencing toxicity. Environmental partitioning, pathways, transformations, and fate.
Prerequisite: BIO 190, BIO 200; CHM 204 or 235; biochemistry desirable.

ENV 486 Toxic Substance Control (3)
Quantification and management of toxic substances, including production, use, distribution, exposure, and control. Risk assessment and regulatory strategies will be emphasized.
Prerequisite: BIO 190, BIO 200; CHM 203 or 234.

OTHER ACADEMIC OPTIONS

Concentration in American Studies

Coordinator: *Jane D. Eberwein (English)*

Committee: *Sheldon L. Appleton (Political Science), Carlo Coppola (International Studies, Modern Languages), James W. Dow (Anthropology), Robert J. Goldstein (Political Science), Roy A. Kotynek (History), Bruce J. Mann (English), David W. Mascitelli (English), Janice Schimmelman (Art History), Richard B. Stamps (Anthropology), Ronald A. Sudol (Rhetoric)*

The American studies concentration provides both a broad understanding of the American experience and an introduction to the practice of focused interdisciplinary study. The concentration is taken in addition to a departmental major. By electing departmental courses with an American focus in two or three areas outside the major and framing the concentration with two interdisciplinary American studies courses, students may expect to gain a coherent sense of the national experience and appreciate the various contributions of different academic disciplines.

Although not a vocationally directed program, the American studies concentration should be of particular interest to students preparing for careers in law, government and journalism, and those planning graduate work in American studies or any of its contributing disciplines.

Concentration requirements include AMS 300, AMS 401, one course in anthropology (preferably AN 315), one American history course at the 300 level, and three electives from the courses listed as electives in the current catalog. No more than two electives may be taken from any one department's offerings, and at least one must represent a field or fields outside the student's major. (Those majoring in anthropology or history should be aware that no more than 8 credits may be counted toward both the major and a concentration.) Students interested in pursuing this concentration should file a plan of study with the coordinator.

Recommended departmental electives

Art and Art History: AH 350, 355
English: ENG 224, 302, 317, 320, 322, 324, 332, 341, 342
History: HST 114, 115, 218, 221, 292, 302, 303, 304, 306, 307, 310, 312, 313, 314, 315, 316, 317, 318, 319, 321, 323
Linguistics: LIN 303
Music: MUS 347, 348
Political Science: PS 100, 115, 203, 301, 302, 305, 307, 323, 324, 342, 343, 371
Sociology/Anthropology: SOC 100, 205, 301, 315, 331, 357; AN 315, 380, 381

Course Offerings

AMS 300 American Culture (4)
An interdisciplinary approach to American culture through examination of several pervading themes (such as manifest destiny, the American dream of success, and tensions between individualism and community). May be used in lieu of one of the College of Arts and Sciences' distribution categories.
Prerequisite: Writing proficiency (may be waived by the concentration coordinator in the case of foreign students).

AMS 401 Senior Project (4)
Either an independent research project or an internship in American studies. Plans for this project must be developed with the concentration coordinator the semester before the student registers for this course. Prerequisite: AMS 300.

Concentration in Applied Statistics

Committee: *Keith A. Berven (Biological Sciences), William E. Bezdek (Sociology and Anthropology), Gerard R. Joswiak (Computer Services), Anandi P. Sahu (Economics), Robert M. Schwartz (Education), Ronald E. Olson (Health Sciences), Mohamed A. Zohdy (Engineering)*

The University Committee on Applied Statistics sponsors this interdisciplinary concentration in applied statistics, which is available to all university undergraduates. This concentration focuses on the application and interpretation of statistical procedures in the pursuit of empirically based knowledge. In order to be certified by the committee as having fulfilled the concentration requirements, students must complete at least 16 credits in statistics, including:

1. One course at the introductory level (QMM 250, PSY 251, SOC 203, STA 226 or SYS 317)
2. STA 322
3. STA 323 or 324
4. One 400-level course in the student's major. This course must meet the approval of the University Committee on Applied Statistics.

Students who wish to take this concentration must develop a program in consultation with a committee member.

Concentration in Archaeology

Coordinator: *Richard B. Stamps (Anthropology)*

Committee: *Carl F. Barnes, Jr. (Art History), Gottfried Brieger (Chemistry), James W. Dow (Anthropology), Richard Redding (Anthropology)*

The concentration in archaeology prepares students for graduate study in archaeology. It is also helpful for students interested in an interdisciplinary approach to human cultural development viewed from historical, aesthetic and scientific perspectives. A minimum of 28 credits are required for this program:

1. AH 100, AN 101 and 222
2. One of the following: AH 312, AH 314, AN 282, AN 370, AN 371 or AN 380
3. 8 credits in field methods (AN 383)
4. At least 4 elective credits. The following courses are recommended for those who wish to expand their background: AH 322, AH 326, HST 261, HST 306, HST 367 and PHY 107.

Students are reminded that professional conservation work requires knowledge in botany and chemistry.

Minor in Computer Science

Coordinator: *Subramaniam Ganesan (Computer Science and Engineering)*

The minor in computer science is offered by the School of Engineering and Computer Science and is available to students within the College of Arts and Sciences. Many combinations are feasible.

With a major in mathematics, physics, chemistry or biology, a student may wish to emphasize numerical and scientific computing aspects of computer science. With a major in English, modern languages, history, philosophy, psychology, sociology or anthropology, a student may wish to take courses that emphasize non-numerical and symbolic data processing, and language translation.

With a major in economics, a student may wish to take courses oriented toward application of computers in management data processing. For specific requirements, see the School of Engineering and Computer Science portion of the catalog.

Concentration in Energy Studies

Coordinator: *Gottfried Brieger (Chemistry)*

The concentration in energy studies provides students with an interdisciplinary approach to energy issues, examined from the perspective of anthropology, biology, chemistry, economics, engineering, physics and political science. It serves as a foundation for additional specialized study in any of these fields. This concentration requires a minimum of 28 credits, distributed as follows:

1. Core — all of the following: AN 322, ENV 312, PHY 115 and PS 250
2. Advanced option — one of the following: AN 410, ME 454
3. Practicum — all of the following: EGR 106, EGR 108 and EGY 390 (4 or 8 credits)

Course Offering

EGY 390 Energy Projects (4 or 8)
Laboratory or field work under the direction of a faculty supervisor approved by the concentration coordinator on a current energy-related issue resulting in a comprehensive project and report.
Prerequisite: Concentration courses EGR 106 and EGR 108 are recommended prior to enrollment.

Concentration in Environmental Studies

Coordinator: *Paul Tomboulian (Chemistry)*

The concentration in environmental studies introduces students to modes of thought and action relative to environmental issues. Students learn to identify and evaluate alternative solutions to environmental problems. Short- and long-range implications of human activities are analyzed, especially as they affect resources and public policy.

Concentrations are available in conjunction with cooperating departments. Requirements for the concentration are a minimum of 28 credits in environmental studies and related courses including ENV 308 or ENV 311, to be planned and approved beforehand. Courses must be selected from at least three different rubrics, and must include at least 20 credits of work at the 300 level or above. An approved Concentration/Minor Authorization Form must be filed three semesters prior to graduation. Courses in environmental studies are listed under the Environmental Health Program.

Related courses in many departments are often suitable for an environmental studies concentration. These include, but are not limited to: AN 300, BIO 301, BIO 303, BIO 311, BIO 327, BIO 373, BIO 375, BIO 377, EGR 407, ENV 322, HST 384, PHL 318, PHY 107, PHY 115, PS 250, PS 350 and PS 353. Consult the program coordinator for details.

Concentration in Film Aesthetics and History

Coordinator: *Brian F. Murphy (English)*

Committee: *Bonnie Abiko (Art and Art History), Peter J. Bertocci (Anthropology), Robert T. Eberwein (English), Donald C. Hildum (Communications), Harriet E. Margolis (English), Sally M. Silk (Modern Languages and Literatures)*

The interdisciplinary concentration in film aesthetics and history, sponsored by the departments of Art and Art History, Center for International Programs, English, Modern Languages and Literatures, Rhetoric, Communications and Journalism, and Sociology/Anthropology offers multiple perspectives for examining theoretical and critical issues of film as art and com-

munication. The introductory courses explore the operation, function and construction of film. The history courses examine narrative and technical developments with emphasis on major directors, genres and trends. The theoretical courses are concerned with the uniqueness of film, its relation to other forms of verbal and plastic arts, and special approaches needed for analysis and enjoyment.

The range of viewing experiences and the variety of approaches to the medium provide an excellent preparation for students seeking employment in advertising, publishing, journalism, visual media or teaching, as well as those who wish to pursue film studies on the graduate level.

A minimum of 28 credits is required, including CIN 150, ENG 250, ENG 392; two courses chosen from among CIN 300, CIN 301 and CIN 302; and two courses chosen from AH 367, AN 307, CIN 450, LIT 251 and SCN 303. In special circumstances, CIN 499 may be substituted for one of the above courses with permission of the concentration coordinator.

Course Offerings

CIN 150 Introduction to Film (4)
Introduction to the art of film by examination of the filmmaking process, study of narrative and non-narrative film, and exploration of film's relation to society. *Satisfies the university general education requirement in arts.*

CIN 300 History of Film: The Silent Era (4)
Survey of directors and films important in shaping film history: Griffith, Eisenstein, Chaplin, Maurnau, Pabst, Lang and others.

CIN 301 History of Film: The Sound Era to 1958 (4)
Examination of significant directors, genres and movements: Welles, Hitchcock, Renoir, DeSica and others; the western, gangster film, musical; neorealism, film noir.

CIN 302 History of Film: The New Wave and Beyond (4)
Study of film since 1959: New Wave directors such as Truffaut, Godard, Resnais; major artists such as Fellini, Bergman, Kubrick; experimental films and new developments.

CIN 450 Topics in Film (4)
Examination of specialized subjects in film such as: The War Film, Alfred Hitchcock's Films, The New Wave, The Japanese Cinema. Topics to be selected by instructor.
Prerequisite: Permission of instructor or one course in film.

CIN 499 Independent Study (4)
Study on an independent basis for students with demonstrated interest in film. A proposed course of study must be submitted to the prospective instructor in the semester before the independent study is to be taken.
Prerequisite: One course in film.

Concentration in Folklore and Popular Culture

Coordinator: *Mark E. Workman (English and Folklore)*

Committee: *Jane M. Bingham (Education), Marc E. Briod (Education), Judith K. Brown (Anthropology), Roy Kotynek (History)*

Folklore is traditional, artistic behavior; it is engaged in by even the most intellectually and technologically sophisticated among us, and it encompasses all modes of expression. Popular culture borrows from folklore its formulas of production as well as much of its content. The concentration in folklore and popular culture provides an introduction to the materials and methods of inquiry into these subjects, and encourages students to pursue further the extensive social and cultural ramifications of folklore and popular culture into related areas of study.

The program is of potential relevance to students in all areas of the humanities, social sciences and education. It will be of benefit to them both in their studies at Oakland University and as preparation for careers in the media, human services, teaching or graduate work in any of the fields related to the concentration.

This concentration requires a minimum of 28 credits, including ENG 214 and 302. A minimum of 8 credits must be taken at the 300-400 level, and no more than 8 credits from the student's major will count toward the concentration. A current list of approved electives, which must be selected in consultation with the concentration coordinator, follows: ALS 375, AN 251, AN 271, AN 310, AN 333, CIN 150, ENG 220, ENG 211, ENG 304, ENG 312, ENG 313, ENG 314, HST 222, HST 292, HST 346, IS 386, MUS 347, RDG 332 and SCN 371.

Concentration in Gerontology

Committee: *Elinor B. Waters (Continuum Center), Harold Zepelin (Psychology)*

The multidisciplinary concentration in gerontology, which is co-sponsored by the College of Arts and Sciences and the School of Education and Human Services, provides students an opportunity to gain an understanding of aging as a process in personal, cultural and social contexts. It adds another dimension to career preparation for students who plan to obtain graduate degrees in helping professions such as nursing, clinical psychology and social work. It also offers essential background and introductory experience to students holding bachelor's degrees who wish to seek employment in agencies that provide services for the elderly.

The concentration requires a minimum of 28 credits, 16 in required core courses and 12 in elective courses. The advanced core course, a multidisciplinary seminar on aging (GRY 400), will bring students into contact with diverse disciplines that have an interest in aging. Students in Arts and Sciences majors must choose one elective (4 credits) from HRD courses.

Requirements for the concentration in gerontology consist of the following:

1. Core — PSY 331 and SOC 465
2. Research methods course: PSY 250 or SOC 202/204
3. Required advanced course: GRY 400
4. Electives: HRD 369 or HRD 490, HRD 431, HRD 451, HRD 452, PSY 332, PSY 372, SOC 314/514 or SOC 315/515, and GRY 480

Course Offerings

GRY 400 Multidisciplinary Seminar on Aging (4)
Presentations of research and reviews of the literature, bringing together contributions from biology, the health care professions, the humanities, political science, psychology and sociology.
Prerequisites: Completion of two core courses and a research methods course.

GRY 480 Research in Gerontology (4)
Individually designed experience in research on aging, beginning with reviews of the literature and culminating in data collection or formulation of a research proposal.
Prerequisite: Completion of two core courses and a research methods course.

Concentration in Human and Industrial Relations

Coordinator: *Jacqueline R. Scherer (Sociology)*

The concentration in human and industrial relations requires a minimum of 28 credits and is to be taken in conjunction with a full major in any department of the university. It is basically a social scientific approach to the workplace in which research, analysis and social criticism are linked together in the examination of changing work patterns.

The following requirements apply to the concentration:

1. 12 credits chosen from: AN 300, SOC 350, SOC 352, SOC 357, SOC 381
2. ECN 150 (or ECN 200 or ECN 210)
3. HST 302
4. Two electives from the following: HST 210, HST 304, LE/SOC 324, LE 326, PHL 316, PSY 350, SCN 304, SOC 354, SOC 455, SOC/AN 480.

Concentration in Michigan Studies

Coordinator: *Richard B. Stamps (Anthropology)*

Committee: *John B. Cameron (Art History), Gottfried Brieger (Chemistry)*

The concentration in Michigan studies is an integrated program of courses that provides both a broad introduction to and a focused interdisciplinary study of Michigan. Each student is required to take MC 100 "Life in Michigan," which serves to integrate the various disciplinary offerings.

The concentration requires completion of a minimum of 26 credits, including MC 100, to be selected from the following course offerings. No more than 8 credits from the student's major may be counted toward the concentration.

Course Offerings

MC 100 Life in Michigan (2)
An introduction to Michigan history and politics, fine art and archaeology, geology and environment, flora and fauna, climatology, and industry and economic development.

Students will select the remaining 24 credits from the following courses (4 credits each, except for ENV 373, 3 credits).

AH 355	Michigan Architecture
AH 399	Field Experience in Art History
AN 383	Methods in Anthropological Archaeology
AN 399	Field Experience in Anthropology
BIO 373	Field Botany
HST 218	History of Michigan
HST 302	American Labor History
HST 399	Field Experience in History
PS 305	Politics of the Local Community
PS 307	State Politics
PS 458	Public Affairs Internship

Concentration in Preprofessional Studies in Medicine, Dentistry and Optometry

Coordinator: *Egbert W. Henry (Biological Sciences)*

Committee: *Gottfried Brieger (Chemistry), Denis M. Callewaert (Chemistry), Robert W. Jarski (Health Sciences), Virinder K. Moudgil (Biochemistry), John R. Reddan (Biological Sciences), Robert L. Stern (Chemistry), Nalin J. Unakar (Biological Sciences), Barry S. Winkler (Eye Research Institute)*

The concentration in preprofessional studies in medicine, dentistry and optometry is intended for students who wish to pursue careers in medical, osteopathic or dental professions. Students are expected to complete a concentration consisting of the following:

1. 20 credits of biology, including laboratories
2. 20 credits of chemistry, including laboratories and two semesters of organic chemistry
3. 8 credits of mathematics
4. 10 credits of physics, including laboratories

In chemistry, mathematics and physics courses, students should opt for sequences that are more rigorous in academic content. The concentration provides the minimum requirements for admission to various medical, osteopathic and dental schools in Michigan and elsewhere. The committee strongly recommends the following additional courses for better preparation for the Medical College Aptitude Test (MCAT) and medical school curriculum:

1. Science: genetics (BIO 341), developmental biology (BIO 323, 324), biochemistry (BIO 325 and 326 or CHM 453, 454, 457 and 458) and physiology (BIO 321 or BIO 207).
2. Humanities: vocabulary and etymology (ALS 102) and/or RHT 103, 105 and 110. RHT 105 and 110 are suggested for improving reading comprehension skills in preparation for the MCAT.

Students intending to pursue a career in the optometric profession are advised to take the following courses:

1. 20 credits of biology, including laboratories
2. 20 credits of chemistry, including laboratories and two semesters of organic chemistry
3. 12 credits of mathematics
4. 10 credits of physics, including laboratories
5. 4 credits of introductory psychology, 8 credits of English and 8 credits of social science

This concentration does not constitute a major. Students must elect a major from those offered by the university. Interested students should consult the advisory committee for counseling and assistance in planning their academic programs.

Concentration in Religious Studies

Coordinator: *Leonardas V. Gerulaitis (History)*

The religious studies concentration offers a series of courses on religion, both Western and Eastern, traditional and contemporary. These courses do not seek to confirm or attack any particular religious point of view; they are taught in the same scholarly and objective spirit as other university courses and aim at understanding a pervasive human phenomenon. They are grouped into two types: historical studies and systematic studies.

The program currently offers a concentration in religious studies that consists of at least 20 credits in religion, which may be taken jointly with a modified major (24 credits) in philosophy or with a full major in any other department of the College of Arts and Sciences.

Students wishing to make religion the focus of an independent major will receive the support of the Committee of Religious Studies. Interested students should see the concentration coordinator for further information.

In addition to the religion courses, several collateral courses are suggested: ENG 312, HST 325 and PHL 205. Courses with REL 200 numbers require only sophomore standing; courses with REL 300 numbers require one previous course in religious studies at Oakland University, unless identical with departmental courses having different prerequisites.

Course Offerings

HISTORICAL STUDIES

REL 200 Topics in the Historical Study of Religion (4)
The topic varies. Samples include: the New Testament, medieval mysticism, early Buddhism, the Protestant Reformation, Christ and Caesar, eighteenth and nineteenth century attacks on religion. May be repeated for credit.

REL 202 The Jewish Tradition (2 or 4)
Selected ideas and institutions in the development of Judaism from its pre-exilic roots to the present. Offered in cooperation with the Jewish Chautauqua Society.

REL 203 The Christian Tradition (4)
Study of the most important Christian ideas and institutions from Jesus to the present.

REL 211 The Bible as Literature (4)
Identical with ENG 211.

REL 304 The Islamic Tradition (4)
Selected ideas and institutions in the history of Islam.

REL 307 American Religious History (4)
Identical with HST 307.

REL 350 Philosophies and Religions of Asia (4)
Identical with PHL 350.

SYSTEMATIC STUDIES

REL 227 Psychology of Religion (4)
Basic data of religious experience in relation to motivation, cognitive structure, and personality; problems of religious symbolism, verbal and nonverbal; dynamics of religious movements; growth, propagation, and preservation of orthodoxy; varieties of reform.

REL 229 Religion and Literature
Study of a few masterpieces of world religious literature, such as Greek tragedy, Hindu epic, Dante and Milton, with an attempt to generalize about the use of religious themes in literature and about literature as an expression of religious belief.

REL 271 Magic, Witchcraft and Religion (4)
Identical with AN 271.

REL 291 Religion and Contemporary Moral Problems (4)
Investigation of the theological and ethical reasons for the emergence of a new attitude toward moral questions. Protestant, Catholic, Jewish and secular viewpoints on some of these: love, sex, civil disobedience, criminal punishment, violence, war, suicide and death.

REL 305 Sociology of Religion (4)
Identical with SOC 305.

REL 325 Philosophy of Religion (4)
Identical with PHL 325.

REL 390 Directed Readings in the Study of Religion (4)
Individual study of a topic not covered by regular courses, with guidance of a faculty tutor. May be repeated for credit.
Prerequisite: Permission of concentration coordinator.

Concentration in Social Justice and Corrections

Coordinator: *Jay Meehan (Sociology)*

The concentration in social justice and corrections requires at least 28 credits and is to be taken in conjunction with a full major in any department of the college. It provides career-oriented education for students interested in law, in the social forces producing delinquency and crime, in the evaluation of social planning for crime prevention and control, and in the operation of police organizations and correctional institutions.

A student must be formally admitted to the program and meet the following requirements:

1. 12 credits chosen from PHL 319, PS 241, PS 342, SOC 240*, SOC 327, SOC 437
2. 12 credits from PHL 321, PS 343, PSY 220, SOC 322, SOC 323, SOC 425
3. 4 credits of SOC 430

*Students are strongly advised to take this course at the beginning of their concentration.

The internship is designed to give students practical experience in the criminal justice or legal system. The student's particular interests guide the internship selection process. An internship usually involves work in an agency for 20 hours per week and meeting with the internship adviser on a regular basis. Students who qualify may receive paid internships. A term paper on some aspect of the internship experience is required in order to receive course credit. The internship is a valuable learning experience and should be taken toward the end of the concentration.

Concentration in Social Services

Coordinator: *Jacqueline R. Scherer (Sociology)*

The concentration in social services requires a minimum of 28 credits and is available to students throughout the university, regardless of major. It is primarily designed for students who intend to pursue graduate studies in social services or who are interested in the analysis of social programs and social welfare policies. The social and psychological dimensions of service delivery are explored as they relate to professional development and the integration of theoretical and applied approaches to problem solving.

The following requirements apply to the concentration in social services:

1. SOC 314 and 315
2. Two of the following: PSY 220, 311, 331 or 332
3. Field experience: PSY 399, SOC 399 or equivalent course
4. Statistics: SOC 203 or equivalent course
5. One elective from the following: HI 361, HRD 331, PSY 336, SOC 328, SOC 331, SOC 335, or SOC 465/565

Students are requested to enroll formally in the program by completing an application at the Department of Sociology and Anthropology office.

Concentration in Urban Studies

Coordinator: *Harry Gold (Sociology)*

Committee: *De Witt S. Dykes (History), Oded Izraeli (Economics)*

The urban studies concentration is designed to provide a comprehensive interdisciplinary understanding of modern urban civilization and to develop an appreciation of some of the problems and policy issues confronting contemporary American urban communities. It is also designed to introduce some of the technical skills that are a prerequisite to the successful pursuit of career opportunities in a variety of urban-oriented public and private service or administrative organizations.

The concentration provides a carefully selected group of required core courses drawn from several departments, allows a relatively broad choice of electives and provides an interdisciplinary seminar designed to help integrate the knowledge and skills acquired in the program.

Students wishing to pursue the concentration in urban studies must submit an advising plan to the concentration adviser and make application to the concentration coordinator to be admitted to the program. One course in statistics and/or methodology offered by a social science department or a statistics course offered by the Department of Mathematical Sciences is a prerequisite to the program. To earn the urban studies concentration, students must complete a minimum of 28 credits, distributed as follows:

1. Core — three of the following four courses: ECN 309, HST 223, PS 305, SOC 345
2. Electives — four of the following courses (none of the courses may overlap with courses in the student's major and no more than two courses may be taken in a single department): AH 363, HRD 331, HRD 364, HST 302, PS 307, PS 350, PS 353, PSY 326, SOC 315, SOC 331

3. Internship — although an urban internship or field experience is not required as part of the concentration, it is strongly suggested that students complete such a course in their major department or another program in the university.

Concentration in Women's Studies

Committee: *Linda Benson (History), Barbara Hamilton (Rhetoric), Susan Haworth-Hoeppner (Sociology), Linda Hildebrand (Library), Barbara Mabee (Modern Languages), Hoda Abdel-Aty-Zohdy (Engineering)*

The women's studies concentration explores the contributions of women through their work and lives, to the arts, the sciences and society. The concentration opens areas of study and research related to women that arise from the various academic disciplines and from women's experience, uniting and clarifying core concepts and ideas.

Students working toward a women's studies concentration discover information and generate questions that lead to an understanding of the present position of women in society and to the formulation of theories that may explain, predict and improve that position. This interdisciplinary concentration is a humanistic complement to any conventional academic major.

A minimum of 28 credits are required for the concentration in women's studies, distributed as follows:

1. WS 200 (4 credits)
2. Three women's studies courses (12 credits) with numbers of 300 and above, excluding WS 399 and WS 400. The content and instructor for WS 301, "Special Topics," and WS 401, "Advanced Topics in Women's Studies," change from semester to semester; therefore, students may receive credit for more than one WS 301 and 401 class provided they are cross-listed with different courses. The student can receive credit toward the concentration for a course taken under the departmental rubric if it is cross-listed with women's studies during that semester; a student may not receive double credit for the same course taken under the WS rubric and the departmental rubric.
3. Three additional women's study courses (12 credits) or approved women's studies electives; a list of women's studies electives for the current semester is available in the *Schedule of Classes* or from the concentration coordinator.

Course Offerings

WS 101 Introductory Topics in Women's Studies (4)
Course content varies.

WS 200 Introduction to Women's Studies (4)
Core course provides an overview of women's studies theories and methods. Strictly interdisciplinary and comparative in approach, offering a general education in women's studies literature, history, economics and culture. May be used in lieu of one of the College of Arts and Sciences' distribution categories.

WS 201 Topics in Women's Studies (4)
Course content varies.

WS 224 History of American Families (4)
Identical with HST 224.

WS 300 Women in Transition (4)
Focuses on life experiences unique to women. Major issues include identity and independence, marriage, childbirth, adulthood and aging.

WS 301 Special Topics in Women's Studies (4)
Course content varies. Representative topics have included: gender, ethnicity, and representation; black women in America; women in German literature and culture.

WS 305 Anthropological Perspectives on the Life Cycle (4)
Identical with AN 305.

WS 311 Women and Politics (4)
Identical with PS 311.

WS 325 Psychology of Women (4)
Identical with PSY 325.

WS 335 The Family (4)
Identical with SOC 335.

WS 336 Sociology of Gender (4)
Identical with SOC 336.

WS 337 Women's Lives in Cross-Cultural Perspective (4)
Identical with AN 337.

WS 339 History of Women: Modern Europe (4)
Identical with HST 339.

WS 351 Women in Art (4)
Identical with AH 351.

WS 352 Women and Work (4)
Identical with SOC 352.

WS 399 Field Experience in Women's Studies (4)
Field experience in women's studies with faculty supervision. An academic project involving field work or community activism around an issue of importance in women's studies. May not be repeated for credit.
Prerequisite: WS 200 and 12 credits in women's studies or approved women's studies electives.

WS 400 Directed Research in Women's Studies (2, 4)
Directed individual study and advanced scholarly research in women's studies.
Prerequisite: Approval of faculty adviser and women's studies coordinator.

WS 401 Advanced Topics in Women's Studies (4)
Course content varies. Representative topics include research methods in women's studies.

WS 481 Gender Socialization in Schools (4)
Identical with EED 481 and CIL 561.

Prelaw Studies

Students planning to attend law school after graduation should major in a field in which they have both interest and aptitude; the actual field is less important for admission than the overall success of the student in college training as measured by the cumulative grade point average and scores on the Law School Admission Test (LSAT).

Rather than mastery of any particular subject matter, law schools require of incoming students certain basic skills, particularly the ability to think logically and to express oneself orally and in writing in a coherent and precise manner. No one academic discipline possesses a monopoly on development of these abilities. The best advice to students planning legal careers is to develop strong writing skills and to plan undergraduate course study with an eye toward long-term plans within the legal profession.

Although there is no formal prelaw curriculum at Oakland University because no set of specific courses is necessary for admission to, or success in, American law schools, the attention of students interested in law is drawn to courses in five categories. None of these courses is in any sense required, or even strongly recommended, for all prelaw students, yet the experience of many lawyers and law students suggests that they will be helpful to some.

I. The first category consists of courses that develop fundamental abilities of reasoning and communication. Introductory courses in all of the liberal arts disciplines (humanities and natural and social sciences) serve this purpose. Particularly relevant are courses that develop thinking and writing capabilities. These include: ENG 380, PHL 102 and PHL 103.

II. A second group, devoted to oral communication, includes: SCN 201, SCN 220, SCN 301, and THA 110.
III. A third group features law in relationship to other disciplines. The university offers many courses placing law and legal institutions in such a context. These include: AN 440, ECN 378, HST 303, PHL 319, PS 241, PS 342, PS 343, SOC 322, SOC 324 and SOC 437.
IV. A fourth group of courses has to do with business operations, an aspect of the practice of law that is often overlooked. The increase in numbers and competition within the bar have placed unprecedented emphasis on business skills. These courses include: ACC 200, MIS 300 and MKT 302.
V. A fifth group, substantive law courses, may be of special interest to students who do not have a definite intention of applying to law school but who wish to be better informed about the law, to experience the special style of legal instruction or to gather enough information to make a final decision about a legal career. These courses include: ENV 461, JRN 403 and MGT 424.

Students considering law school are warned against overemphasizing law-related courses in their undergraduate training. Law schools virtually never give credit, either for placement or for graduation, for such courses and are inclined to believe such students are too narrow in their education. Undergraduate education is a distinct and vital part of one's professional training and should never be regarded simply as a way station before beginning one's "real" work. It must be emphasized that none of the courses listed here is required of, or restricted to, prelaw students.

Liberal Arts Minor in Science

Coordinator: *David J. Downing (College of Arts and Sciences)*

The liberal arts minor in science requires at least 27 credits for the two-science minor, or 29 credits for the three-science minor, selected from courses in biological sciences, chemistry and physics.

Students who elect a single discipline minor in either biology, chemistry or physics are not eligible for the science minor, nor are students who are majoring in biochemistry, biology, chemistry, computer science, engineering, environmental health, industrial health and safety, medical physics, medical technology, nursing, physical therapy or physics.

Two-science minor

1. Complete at least two of the following course sequences: BIO 190, 195 and 200; CHM 144, 145 and 149 (or CHM 164, 165 and 149); or PHY 101, 102 and 158 (or PHY 151, 152 and 158).
2. Complete at least 8 additional credits from either one science or split between the two sciences. Biology and chemistry courses numbered lower than BIO 190 and CHM 144, respectively, do not apply to the science minor (nor do CHM 201, 241, 497 and BIO 300).

Three-science minor

Complete the following: BIO 190, 195 and 200; CHM 144, 145 and 149 (or CHM 164, 165 and 149); and PHY 101, 102 and 158 (or PHY 151, 152 and 158).

HONORS COLLEGE

212 VARNER HALL (313) 370-4450

Director: *Brian F. Murphy (English)*

Council: *Donald C. Hildum (Rhetoric, Communications and Journalism), Vincent B. Khapoya (Political Science), Kathleen H. Moore (Chemistry), Sally Silk (Modern Languages and Literatures), one sophomore, one junior and one senior Honors College student*

The Honors College has been established by the faculty of the College of Arts and Sciences for highly motivated students seeking an unusually challenging undergraduate education. It offers a specially designed general education and additional requirements, in conjunction with a departmental major from the College of Arts and Sciences or one of the professional schools.

Students currently admitted to or enrolled at Oakland University may apply directly to the Honors College for admission; others must apply for admission to Oakland University as well. Application forms are available at the Honors College office.

Courses with the HC prefix are open only to students who have been accepted to the Honors College.

Requirements and Procedures

Departmental majors

Each student must complete a departmental major in the College of Arts and Sciences or a prescribed course of study in the School of Business Administration, the School of Engineering and Computer Science, the School of Health Sciences, the School of Education and Human Services or the School of Nursing.

A student who is not pursuing a standard major (for example, a student with an independent major) may be accepted to the Honors College if the Honors College Council determines that the student's program is of sufficient breadth, depth and coherence.

General education requirements of the Honors College

1. The student must successfully complete RHT 101 or its equivalent.
2. The student must successfully complete at least four Honors College core courses, chosen from HC 201, 202, 203, 204, 205, 206, 207 or 208.
3. The student must successfully complete at least one 4-credit course in each of the four general education areas not covered by the HC core courses taken. A student may meet this requirement by successfully completing relevant university general education courses, departmental courses that count towards a major, additional HC core courses or a combination of these.
4. The student must successfully complete a senior colloquium, HC 401.
5. The student must attain second-year foreign language proficiency.

Note: Honors College requirements replace university general education and college distribution requirements. Students should not attempt to fulfill both sets of requirements.

Advanced standing

The student shall apply for advanced standing in the Honors College, normally by the end of the fourth semester. Following receipt of the application, the Honors College Council will interview the applicant. The interview will be of a general nature, but will deal, in part, with material studied in the Honors College core courses the student has completed.

After the interview, the council may admit the student to advanced standing, grant the student conditional advanced standing or ask the student to withdraw from the Honors College. A student who is granted conditional advanced standing will be given reasons for this status.

Generally, a student will not be considered for admission to advanced standing, or for removal of conditional status, later than the fourth week of the semester following that in which the student completes 80 credits.

Independent project

Each Honors College student must successfully complete a major creative or scholarly work under the supervision of a faculty member. All independent projects must be approved by the Honors College Council prior to proceeding with work. Independent project proposals should be submitted to the council before students complete their junior year. The project must be approved within the first four weeks of the semester following that in which the student completes 96 credits.

The student may receive departmental or Honors College independent study credit for all or part of this work. The student may, but is not required to, register for HC 490.

The project must be independently designed and completed.

Completed independent project reports are due no later than the week following the middle week of the semester in which the student intends to graduate.

Grade point average and graduation honors

A grade point average of at least 3.30 is required for graduation.

Honors College students may receive departmental and university honors upon graduation.

Course Offerings

HC 201 through 208 Honors College Core Courses (4 each)
Introduction to ways of thinking characteristic of a modern university. HC 201 deals with the arts, HC 202 with literature, HC 203 with language, HC 204 with western civilization, HC 205 with international studies, HC 206 with social science, HC 207 with mathematics, logic or computer science and HC 208 with natural science or technology. Offered every other year.

HC 300 Special Topics (2, 4)
Special problems and topics selected by the instructor.
Prerequisite: Open to Honors College students only.

HC 401 Honors College Senior Colloquium (4)
Discussion of a broad topic of traditional concern or an issue of particular current significance. Offered annually.

HC 490 Independent Study (2, 4)
Supervised instruction in the Honors College independent project. May be repeated for credit. Offered each semester.

SCHOOL OF BUSINESS ADMINISTRATION

433 VARNER HALL (313) 370-3282

Dean: *George E. Stevens*

Office of the Dean: *John E. Tower, associate dean; Kathleen G. Kazarian, coordinator for academic advising; Carole J. Terry, undergraduate academic adviser; Winfred Robinson, computer facilities administrator; Julie A. Dziekan, administrator, Master of Business Administration program*

Department chairs: *Lizabeth A. Barclay, Management and Marketing; Gadis J. Dillon, Accounting and Finance; Albert L. Lederer, Decision and Information Sciences; Ronald L. Tracy, Economics*

Professors: *Eleftherios N. Botsas, Daniel N. Braunstein, Joseph E. Champagne, Gadis J. Dillon, David P. Doane, Karl D. Gregory, Ronald M. Horwitz, Robbin R. Hough, Oded Izraeli, Sid Mittra, Ravi Parameswaran, Miron Stano, George E. Stevens*

Associate professors: *Lizabeth A. Barclay, Edward J. Farragher, Sherman T. Folland, Augustin K. Fosu, John W. Henke, Albert L. Lederer, J. Austin Murphy, Kevin J. Murphy, R. Mohan Pisharodi, Howard S. Schwartz, John E. Tower, Ronald L. Tracy, Mary P. Van Sell, T. J. Wharton, Floyd G. Willoughby*

Assistant professors: *Mohammed S. Bazaz, Sadik Cokelez, Addington Coppin, Alexsandra Glowacka, Amir M. Hormozi, Sheila M. Jacobs, John Kim, Robert T. Kleiman, Thomas W. Lauer, Donald Mayer, Kevin Nathan, James E. Payne, Eileen Peacock, Sandra S. Pelfrey, Anandi P. Sahu, Barbara A. Theisen, Kenneth M. York*

Special instructor: *David D. Sidaway*

Visiting instructor: *Joseph H. Callaghan*

Adjunct professors: *Rikuma Ito, Paul O. Kingstrom, Diane B. Stricker*

Lecturers: *Frank P. Cardimen, Jr., David W. Essig, Robert J. Forbes, George Kuljurgis, David Medved, David Minkus, Ronald Semaan*

Board of Visitors

The Board of Visitors provides a direct link between the business community and the School of Business Administration. The board is composed of outstanding corporate and professional leaders from the Detroit metropolitan area. Board members assist the faculty on several projects and provide consultation on goals and objectives, curricula designs and research programs.

The board members are:

Thatcher W. Root, Vice President, Prudential-Bache Securities, Incorporated; chairman, Board of Visitors
Joseph A. Campana, President, Automotive Division, Carlson Companies, Inc.
Robert L. Condon, Executive Vice President, Comerica Incorporated
James K. Croll, Sales Vice President, AT&T
Michael W. Grieves, President, Data Systems Network Corporation
William R. Halling, Managing Partner, KPMG Peat, Marwick
John G. Middlebrook, General Manager, Pontiac Motor Division

Role and Mission

The School of Business Administration offers high quality undergraduate and graduate programs which provide graduates with the knowledge and skills to become effective professionals. In support of its mission, the school is committed to recruiting a diverse student body, providing them with high quality educational experiences, and instilling in them a desire for continued learning. The school recognizes that its mission is best achieved by: (1) having a diverse faculty and staff, (2) supporting an intellectual environment conducive to professional growth, (3) participating in the national and international scholarly communities through research and publication, (4) maintaining close relationships with alumni, and (5) interacting effectively with area business and community organizations.

General Information

The School of Business Administration offers undergraduate programs for students interested in obtaining the skills and information needed to manage profit-making businesses, not-for-profit enterprises (e.g., health care institutions, educational institutions, cooperative societies) and governmental units. High school students who intend to pursue a major offered by the School of Business Administration should consult the *Admissions* section of the catalog for specific preparation requirements. Students transferring credits from foreign institutions may be requested to provide documentation of the content and scope of courses they have taken at foreign institutions.

The programs include: Bachelor of Arts, with a major in economics (offered in conjunction with the College of Arts and Sciences; see the Department of Economics section for a description of this program); Bachelor of Science, with majors in accounting, economics, finance, general management, human resources management, management information systems and marketing; and minors in accounting, economics, finance, general business, international management, management information systems, production and operations management, and quantitative methods.

The School of Business Administration offers the Master of Business Administration (MBA) degree for superior students in any major, including business and management. The MBA is a professional program in business designed to prepare students for careers involving problem identification, problem solving, decision making and leadership in any type of organization. It is preferred that students with an undergraduate degree in business or one of the functional areas of management have two years of work experience before entering the MBA program.

Oakland University undergraduates working on majors other than those in the management areas may earn both an undergraduate degree and an MBA by completing an accelerated program. To be eligible, students should have a grade point average in the top 15 percent of students in their major. Students may apply to the program after they have completed 80 undergraduate credits. For more information, see the *Oakland University Graduate Catalog.*

The School of Business Administration is accredited, on both the undergraduate and graduate levels, by the Accreditation Council of the American Assembly of Collegiate Schools of Business (AACSB).

Degree Requirements

The curriculum described shall be followed by students entering the School of Business Administration beginning with the fall 1991 semester. Students enrolled prior to fall 1991 may choose to satisfy either the degree requirements listed in this catalog or those in the catalog of the academic year in which they were initially admitted to pre-business in the School of Business Administration (or any catalog during the interim) provided that catalog is not more than six years old at the time of graduation. Students who transfer to the School of Business Administration after admission to the university or who are readmitted to the university are required to follow the requirements of the catalog in effect at the time they transfer or are readmitted.

To ensure they have met all requirements, students should seek a final program audit from one of the school's academic advisers the semester before the semester in which they plan to graduate. The responsibility for meeting graduation requirements rests with the student.

The business administration program enables students to combine intensive study of a functional area of business with a broad background in management. This combination will allow students to understand and manage changing situations in profit-oriented enterprises or not-for-profit organizations, both public and private. In this program, a general education is combined with rigorous analytical training, enabling students to handle the increasingly complex and changing problems faced by managers.

The business administration program offers students the opportunity to major in general management or in one of the functional areas of business: accounting, finance, human resources management, marketing or management information systems. The program leads to a Bachelor of Science (B.S.) degree. (In addition to the majors listed above, the School of Business Administration offers a Bachelor of Science degree with a major in economics. See below.)

The business administration degree program consists of four parts: general education, the precore, the core and the major. Students in this program must satisfy the specific requirements of each of these parts and must earn a minimum of 128 credits.

Each student must:

1. Complete at least 128 credits.
2. Obtain certification of writing proficiency (see *Undergraduate degree requirements*).
3. Complete the university general education requirement (see *Undergraduate degree requirements*).
4. Complete the precore program and be admitted to major standing (see *Admission to major standing*).
5. Complete the core program and the requirements of one of the majors in the School of Business Administration.
6. Complete at least 32 credits at the 300 level or above.
7. Complete at least 32 credits at Oakland University, of which at least 16 credits must be in courses offered by the School of Business Administration. Of these 16 credits, at least 8 credits must be in the student's major.
8. Take the last 8 credits needed to complete baccalaureate requirements at Oakland University.
9. Earn a cumulative grade point average of at least 2.00 in courses taken at Oakland University and in courses taken in the School of Business Administration.

Requirements for Business Administration Majors

General education requirement

Students in the School of Business Administration must satisfy the university general education requirement (see *Undergraduate degree requirements*). These requirements may be summarized as one course from the approved lists in each of the following categories: arts; literature; language; western civilization; international studies; social sciences (School of Business Administration students cannot use ECN courses to satisfy this requirement); natural science and technology;

and mathematics, logic and computer science (this category is automatically satisfied by the school's precore mathematics requirement).

Precore requirements

As preparation for the various majors of the business administration program, students must successfully complete a program that consists of courses in writing, mathematics, computer use, economics, accounting and statistics.

The required precore courses are:

RHT 100-101	Composition I-II (or complete the writing proficiency requirement in another manner)	0-8
MTH 011-012	Elementary-Intermediate Algebra (if required, based on the math placement test)	0
MTH 121	Linear Programming, Elementary Functions	4
MTH 122	Calculus for the Social Sciences (or MTH 154)	4
CSE 125	Introduction to Computer Use	4
ECN 200	Principles of Macroeconomics	
and ECN 201	Principles of Microeconomics	
or ECN 210	Principles of Economics (a 6-credit course which covers the material of both ECN 200 and ECN 201)	6-8
ACC 200	Introductory Financial Accounting	4
ACC 210	Managerial and Cost Accounting I	4
QMM 250	Statistical Methods	6
		32-42

The freshman and sophomore years of study for students pursuing the business administration program will be devoted to the successful completion of the general education and precore course requirements. Special emphasis should be given during the freshman year to the completion of the university writing proficiency requirement and steady progress in the mathematics sequence. Once sophomore status has been achieved (28 credits), students will begin work on the economics, accounting and statistics requirements.

Admission to major standing in business administration

To be eligible to take 300- and 400-level courses, students must be admitted to major standing in the School of Business Administration. Exceptions to this policy are ACC 310, ENG 382, MKT 302, ORG 330 and all ECN courses.

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 proficiency requirement.
3. A minimum grade point average of 2.80 in all courses taken at Oakland University, as well as a cumulative grade point average of 2.80 from all colleges attended including Oakland University.
4. A minimum grade of 2.0 in each of the following precore courses or their equivalents: MTH 121, MTH 122, CSE 125, ECN 200 and ECN 201 (or ECN 210), ACC 200, ACC 210 and QMM 250.
5. Submission of an "Application for Major Standing" for the desired major **during the first month** of the semester in which the student expects to complete the precore requirements.

Core program

Each of the business major programs requires the completion of a common core of courses introducing students to the functional areas of business. The core courses required in all business administration major programs are:

ENG 382	Business and Technical Writing (or ENG 380)	4
ECN 301	Intermediate Microeconomics	3

MKT 302	Marketing	4
ORG 330	Introduction to Organizational Behavior	3
POM 343	Operations Management	4
FIN 322	Managerial Finance I	4
MGT 350	Legal Environment of Business	3
MIS 300	Management Information Systems	3
ORG 331	Introduction to the Management of Human Resources	3
MGT 435	Management Strategies and Policies	4
		35

All courses in the core program require major standing except ENG 382, all ECN courses, ORG 330 and MKT 302. MGT 435 is a course that integrates the material in the core program and may be taken only after students have completed the rest of the core program.

Major programs

Students complete their program by taking 16-24 additional credits specified in their major area. The junior and senior years will be devoted to the successful completion of the requirements of the core and major. Majors from which business administration students may choose are detailed below. Double majors are permitted in all areas except general management. No more than 4 credits of independent study (490 courses) may be used to meet the major elective requirement. Courses numbered 480 may be repeated for credit provided the topics are different.

Requirements for the major in accounting

Major adviser: *David D. Sidaway*

To fulfill requirements for the accounting major, students must be admitted to major standing in accounting, complete the core program, and earn a minimum of 32 credits in the courses specified below, with a grade of 2.0 or better in each course. A grade of 2.0 or better must be achieved in all prerequisite accounting courses before a student may enroll in subsequent accounting courses.

Required precore courses:		**Credits**
ACC 200	Introductory Financial Accounting	4
ACC 210	Managerial and Cost Accounting I	4
		8

Required major courses:		
ACC 310	Intermediate Financial Accounting I	3
ACC 311	Intermediate Financial Accounting II	3
ACC 320	Managerial and Cost Accounting II*	3
ACC 411	Auditing	3
ACC 415	Tax Accounting	3
ACC 418	Computer-based Accounting Systems	3
		18

Electives — Choose 6 credits:		
ACC 401	Advanced Financial Accounting**	
ACC 412	Government and Not-for-profit Accounting	
ACC 413	Regulatory Agencies and the Accounting Profession	
ACC 414	Accounting Theory	
ACC 417	International Accounting	
ACC 420	Advanced Auditing Topics	
ACC 421	Advanced Tax Topics	
ACC 480	Contemporary Accounting Issues	6
		32

*Formerly offered as ACC 410
**Formerly offered as ACC 312

Because of their specific requirements, students who plan to take a professional accounting examination (CPA, CMA or CIA) should discuss their course selection with an accounting faculty member before enrolling in 400-level accounting courses.

Note: Fifth Year Option. Although it is not required, the School of Business Administration suggests that students planning to take the Certified Public Accountant (CPA) examination consider taking an additional 30 credits of study in accounting, as recommended by the American Institute of Certified Public Accountants. During this fifth year, students should take the following 30 credits: 18 credits of 400-level accounting courses (in addition to the courses required for the four-year accounting major), FIN 422, MGT 450 and an additional quantitative methods course.

Requirements for the major in finance

Major adviser: *Robert T. Kleiman*

The major in finance leads to an understanding of the theoretical foundations of finance and develops the specific skills, modes of analysis and institutional background useful to work in the accounting and finance areas of profit-making businesses or not-for-profit enterprises.

To fulfill requirements for the finance major, students must be admitted to major standing in finance, complete the core program and earn a minimum of 23-24 credits, as specified below, with a grade of 2.0 or better in each course. A grade of 2.0 or better must be achieved in FIN 322 before a student may enroll in any subsequent finance course.

Required in the core:		**Credits**
FIN 322	Managerial Finance I	4
Required major courses:		
ACC 301	Financial Reporting and Analysis*	4
ECN 321	Money, Credit and the Economy	4
FIN 421	Investment Analysis	4

*In lieu of ACC 301, students may substitute *both* ACC 310 and 311.

Electives — Choose two courses from the following (some may require additional prerequisites):**

FIN 418	Financial Institution Management and Lending	
FIN 419	International Financial Management	
FIN 420	Real Estate Investment, Financing and Taxation	
FIN 422	Managerial Finance II	
FIN 480	Seminar — Special Topics	7-8
		23-24

**ACC 320, ACC 415, or ACC 418 may be substituted for one finance elective.

Requirements for the major in general management

Major adviser: *Floyd G. Willoughby*

The general management major allows students to take advanced work in several functional areas of business. Students may not earn a double major in general management and another major of the School of Business Administration.

To fulfill requirements for the general management major, students must be admitted to major standing in general management, complete the core program and earn a minimum of 16 additional credits in electives with a grade of 2.0 or better in each course. The electives may be chosen from any area within the School of Business Administration (courses beginning with ACC, ECN, FIN, MGT, MIS, MKT, ORG, POM or QMM) and must be chosen from courses numbered 300 or higher; at least 8 credits must be at the 400-level. No more than 4 credits of independent study (490 courses) may be used to meet the major elective requirement.

Requirements for the major in human resources management

Major adviser: *Lizabeth A. Barclay*

The major in human resources 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.

To fulfill requirements for the human resources management major, students must be admitted to major standing in human resources management, complete the core program and earn at least 26 credits as specified below, with a grade of 2.0 or better in each course.

Required in the core:		**Credits**
ORG 330	Introduction to Organizational Behavior	3
ORG 331	Introduction to the Management of Human Resources	3
Required major courses:		
ORG 430	Organizational Research Methods	4
MGT 433	Labor-Management Relations	4
ORG 434	Management of Human Resources	4
Electives — Choose two courses, at least one of which must be a 400-level ORG course:		
ORG 431	Leadership and Group Performance	
ORG 432	Motivation and Work Behavior	
ORG 480	Topics in Organizational Management	
MGT 480	Seminar: Current Business Topics	
ECN 468	Labor Economics	
SOC 350	Transformation of the Workplace	
SOC 352	Women and Work	
SOC 354	Quality of Worklife	8
		26

Requirements for the major in management information systems

Major adviser: *David P. Doane*

The major in management information systems specifies a set of courses that will give students more facility with computer languages, with the use of computers in handling information processing in organizations, with systems analysis and with the use of computers in management decision making and support of organizational functions.

To fulfill the requirements for the major in management information systems, students must be admitted to major standing in management information systems, complete the core program and complete at least 29 credits, as specified below, with a grade of 2.0 or better in each course.

Required in the pre-core and core:		**Credits**
CSE 125	Introduction to Computer Use	4
MIS 300	Management Information Systems	3
Required major courses:		
CSE 130	Introduction to Computer Programming	4
or CSE 132	Introduction to Computer Science (Pascal)	
CSE 220	Computer-based Information Systems I (COBOL)	4
MIS 304	Database Management	4
or CSE 345	Database Design and Implementation	
MIS 316	Systems Analysis	4

Electives — Choose two courses, at least one of which is a 400-level MIS course:		
MIS 400	Analysis of Complex Systems	
MIS 405	Business Data/Telecommunications	
MIS 407	Projects and Problem Solving	
MIS 421	Advanced Business Applications	
MIS 436	Decision Support Systems	
MIS 444	Simulation in Management	
MIS 480	Advanced Topics in MIS	
ACC 418	Computer-based Accounting Systems	
CSE 221	Computer-based Information Systems II (COBOL)	
CSE 262	Data Structures	6-7
		29-30

Requirements for the major in marketing

Major adviser: *John W. Henke*

The major in marketing develops the specific skills, modes of analysis and background to work in the marketing area of a profit-making business or not-for-profit enterprise.

To fulfill the requirements for the major in marketing, students must be admitted to major standing in marketing, complete the core program and complete a minimum of 24 credits, as specified below, with a grade of 2.0 or better in each course.

		Credits
Required in the core:		
MKT 302	Marketing	4
Required major courses:		
MKT 353	Marketing Management	4
MKT 404	Consumer Behavior	4
MKT 405	Marketing Research	4
Electives — Choose two courses:		
MKT 406	Promotional Strategy	
MKT 420	Distribution Channels Management	
MKT 430	Sales Management/Sales Promotion	
MKT 450	International Marketing	
MKT 470	Industrial Marketing	
MKT 480	Seminar in Marketing	8
		24

Bachelor of Science With a Major in Economics

Major adviser: *Ronald L. Tracy*

The curriculum for the major in economics combines the concepts and tools of economic analysis, a broad general education and courses in other areas of interest to the student. Students learn how economic analysis can be applied to major problems facing individuals, businesses, the nation and the world today.

Besides preparing students for a career in economics, an education in economics is excellent preparation for entry into law school, a graduate school of public administration or an MBA program. Economics is a flexible choice for students seeking a rigorous, well-respected and relevant major without specializing in a narrowly defined area. To be employed as professional economists or economics instructors, students normally will need to attend graduate school and obtain at least a master's degree in economics.

For economics majors, the Bachelor of Science degree offers a more quantitative and business-oriented approach to economics than does the Bachelor of Arts degree, offered through the College of Arts and Sciences (see the Department of Economics section in the College portion of the catalog).

Requirements for the Bachelor of Science degree with a major in economics

To earn the Bachelor of Science degree with a major in economics, students must complete a minimum of 128 credits as follows:

		Credits
English composition:		
RHT 100-101	Composition I-II (or complete the writing proficiency requirement in another manner)	0-8
ENG 382	Business and Technical Writing (or ENG 380)	4
General education requirement:		28
See *Undergraduate degree requirements* and exceptions discussed under *Requirements for Business Administration Majors*.		
Cognate courses:		
MTH 011-012	Elementary-Intermediate Algebra (if necessary)	0
MTH 121	Linear Programming, Elementary Functions	4
MTH 122	Calculus for the Social Sciences (or MTH 154)	4
CSE 125	Introduction to Computer Use (or CSE 130 or CSE 132)	4
ACC 200	Introductory Financial Accounting	4
QMM 250	Statistical Methods	6
FIN 322	Managerial Finance I	4
Quantitative methods course — choose one:		
ECN 405	Econometrics	4
QMM 452	Forecasting	
Required core courses:		
ECN 200	Principles of Macroeconomics	
and ECN 201	Principles of Microeconomics	
or ECN 210	Principles of Economics (a 6-credit course that covers ECN 200 and ECN 201)	6-8
ECN 301	Intermediate Microeconomics	3
ECN 302	Intermediate Macroeconomics	4
Electives: 16 additional credits in ECN courses numbered 300 or higher, 8 credits of which must be in courses at the 400-level (excluding ECN 414). No more than 4 credits in ECN 490 may be counted as economics electives.		16
General electives:		27-37
		128

Admission to major standing in economics

Admission to major standing in economics is required before a student may graduate. The minimum requirements for major standing are:

1. Student's admissibility to and retention in the university.
2. Completion of the writing proficiency requirement.
3. A minimum grade point average of 2.80 in all courses taken at Oakland University, as well as a cumulative grade point average of 2.80 from all colleges attended including Oakland University.
4. Completion of the following courses, or their equivalents, with a grade of 2.0 or better in each course: MTH 121, MTH 122, CSE 125 (or CSE 130 or CSE 132), ECN 200 and ECN 201 (or ECN 210), and QMM 250.
5. Submission of an "Application for Major Standing."

Although ECN 301 and ECN 302 are not required for admission to major standing in economics, students must earn a grade of 2.0 or better in them in order to graduate.

Minors

The School of Business Administration offers eight minors for students who want to combine their majors with an introduction to the skills, analytical techniques and institutional material of economics or an area of business.

To earn a minor, students must complete the prescribed courses with a grade of 2.0 or better in each course. School of Business Administration students have priority over majors from outside the school when registering for SBA classes. As a result, many courses have limited space available to nonbusiness majors. Students majoring in programs other than business administration may take SBA courses only if they meet the prerequisites (except major standing) and if there is space in the class. Exceptions to this rule are economics courses (excluding ECN 301 and ECN 321), as they are open to all majors.

All students who are not majors in the School of Business Administration and economics majors in either the School of Business Administration or the College of Arts and Sciences, whether they have applied for a minor or not, are limited to no more than 25 percent of their total degree credits in business courses. The maximum of 25 percent of total degree credits includes courses taken at Oakland University and all previous colleges. Economics (ECN) courses, QMM 250 and QMM 452 are excluded from this requirement. Therefore, students from majors outside the business administration program may not earn more than 25 percent of total degree credits in transfer plus Oakland credits in ACC, FIN, MGT, MIS, MKT, ORG, POM or QMM courses (excluding those noted above).

Any student enrolled in any major in the School of Business Administration may receive any minor offered by the school, other than in the student's major, except for the the minor in general business. The minor in general business is open only to economics majors (B.A. or B.S. program) and students with majors outside SBA. Students not in a major within the School of Business Administration are similarly eligible for multiple minors, but are subject to the 25 percent of total degree credits maximum discussed above. **Transfer students planning to earn a minor must earn at least 12 credits toward the minor at Oakland University; at least 8 of these 12 credits must be in courses at the 300 level or above.**

Minor in accounting

Coordinator: *David D. Sidaway*

The minor in accounting consists of a minimum of the following 20 credits and any prerequisites for these courses: ACC 200, ACC 210 and 12 additional credits in accounting (ACC) courses. This minor is open to all students except accounting majors.

Minor in economics

Coordinator: *Ronald L. Tracy*

The minor in economics consists of a minimum of 18 semester credits in economics courses. A student must take ECN 150 or ECN 210 or both ECN 200 and ECN 201 and any prerequisites for these courses. In addition, a student must earn at least 12 additional credits (16 credits if ECN 150 was taken) in economics (ECN) courses in order to fulfill the 18 credit requirement (excluding ECN 414). This minor is open to all students except economics majors.

Minor in finance

Coordinator: *Robert T. Kleiman*

The minor in finance consists of a minimum of the following 22 credits and any prerequisites for these courses: ACC 200, QMM 250, FIN 322 and 8 additional credits in finance (FIN) courses. This minor is open to all students except finance majors.

Minor in general business

Coordinator: *Floyd G. Willoughby*

The minor in general business consists of a minimum of 19-23 credits, described as follows, and any prerequisites for these courses: ECN 210 or both ECN 200 (or ECN 150) and ECN 201,

ACC 200, ORG 330 and 6-8 additional credits in 300- and 400-level electives (ACC, FIN, MGT, MIS, MKT, ORG, POM or QMM courses) offered by the School of Business Administration. Economics (ECN) 300- and 400-level courses are not acceptable electives for this minor. This minor is open to all majors including the B.A. and B.S. in economics, but students majoring in other programs offered by the School of Business Administration are not eligible.

Minor in international management

Coordinator: *Eleftherios N. Botsas*

The minor in international management consists of a minimum of 18 credits, described as follows, and any prerequisites for these courses: ECN 210 or both ECN 200 and ECN 201, ECN 373, MGT 423 and one course chosen from ECN 326, ECN 342, ECN 350, FIN 419 and MKT 450. Proficiency in a foreign language is not required but is highly recommended. This minor is open to all majors.

Minor in management information systems

Coordinator: *Sheila M. Jacobs*

The minor in management information systems consists of the following 19 credits and any prerequisites for these courses: CSE 125, CSE 130 or CSE 132 or CSE 220, MIS 300, MIS 304 and MIS 316. This minor is oipen to all students except MIS majors.

Minor in production and operations management

Coordinator: *T.J. Wharton*

The minor in production and operations management consists of a minimum of 20 credits, described as follows, and any prerequisites for these courses: CSE 125 or CSE 130 or CSE 132, QMM 250 or STA 226, POM 343, and any two courses chosen from POM 441, POM 445, POM 448, POM 480 and QMM 452. This minor is open to all majors.

Minor in quantitative methods

Coordinator: *David P. Doane*

The minor in quantitative methods consists of a minimum of 19 credits, described as follows, and any prerequisites for these courses: CSE 130 or CSE 132, QMM 250 or STA 226, and any three courses chosen from QMM 452, QMM 440, POM 448, MIS 444, ECN 405, STA 323, STA 324. This minor is open to all majors.

Policies and Procedures

Transfer policy

Evaluation of transfer courses is a two-part process: general education and composition courses are evaluated by the Academic Records Office; business courses are evaluated by the School of Business Administration. Credit for specific SBA courses is authorized for courses of similar content and level taken at other accredited colleges and universities. Courses similar in title or content to those offered by the SBA at the 300-400 level are not authorized to receive specific course credit if taken at the 100-200 level at another institution. Such courses will transfer as general elective credit only. Students transferring from institutions outside the United States should submit course descriptions. See *Transfer student information* for additional information.

Internal transfer

Oakland University students seeking admission to the School of Business Administration from other programs will be considered for admission after they have completed MTH 121 (or an equivalent) with a grade of 2.0 or better. An overall GPA of 2.80 (from all schools attended as well as Oakland) is also required.

Limited course accessibility for nonbusiness majors

School of Business Administration students have priority over majors from outside the school when registering for SBA classes. As a result, many courses have limited space available to nonbusiness majors. Students majoring in programs other than business administration may take SBA courses only if they meet the prerequisites (except major standing) and if there is space in the class. Exceptions to this rule are economics courses (excluding ECN 301 and ECN 321), as they are open to all majors.

Unsatisfactory performance

Numerical grades less than 2.0 and U grades are considered substandard. A course in which a grade below 2.0 has been earned may not be subsequently passed by competency examination or independent study. A student in the School of Business Administration who must repeat a course in which a 2.0 is required must repeat that course at Oakland University or, with prior approval, at any regionally accredited four-year institution. See *Repeating courses* for more information.

Prerequisites

In planning their schedules, students should ensure that they satisfy prerequisite and corequisite conditions for courses. Students who have registered for courses for which they do not meet the conditions will have their registration canceled and will be liable for any financial penalties incurred.

Additional Information

Cooperative education

Students in the School of Business Administration who want to combine relevant work experience with their college educations are encouraged to participate in the university's cooperative education program. Co-op students alternate at least two four-month periods of paid, full-time work experience with four-month periods of full-time classwork. Students are placed in jobs similar to those held by recent Oakland University graduates in business, not-for-profit or governmental organizations. On occasion, unpaid internships that provide work experience also are available. Students interested in the co-op program should contact the Cooperative Education Coordinator in the Department of Placement and Career Services, 275 Vandenberg Hall (370-3253).

Honors, awards and scholarships

In addition to being eligible for honors available to all Oakland University undergraduates, students in the School of Business Administration are eligible for the following:

School honors are awarded by the School of Business Administration to students with a minimum grade point average of 3.33 in courses offered in the school.

American Marketing Award: Each year, the Detroit chapter of the American Marketing Association awards certificates of achievement for scholarship and service to two marketing majors.

Beta Gamma Sigma: Beta Gamma Sigma is the national honor society for business schools accredited by the American Assembly of Collegiate Schools of Business (AACSB). Membership in Beta Gamma Sigma is one of the highest scholastic honors that a student in business administration can achieve. It is based on outstanding scholastic achievement as measured by overall grade point average. Invitation for membership to Beta Gamma Sigma is extended to graduating seniors in the top 10 percent of their class and juniors in the top 5 percent of their class.

Ernst & Young Award: Each year, the senior accounting student who has demonstrated the greatest academic and leadership potential is selected by the accounting faculty to receive a cash award from the international accounting firm of Ernst & Young. The student is honored at a meeting of accounting students, hosted by Ernst & Young.

Financial Executives Institute Award: This award is presented annually to the undergraduate accounting or finance student who has demonstrated the highest standard of academic excellence. The student is honored at a meeting of the Detroit chapter of the Financial Executives Institute. Selection is made by the accounting and finance faculty of the School of Business Administration.

Omicron Delta Epsilon: Omicron Delta Epsilon is a national honor society for promising economics students. Selection for membership is made by the economics faculty.

Wall Street Journal Student Achievement Award: This award is presented annually to the graduating senior who has demonstrated the greatest academic and leadership achievement in the School of Business Administration. Selection is made by the faculty.

School of Business Administration awards/scholarships

Paul F. Lorenz Writing Award: The purpose of this award is to encourage excellence in the preparation of business reports in School of Business Administration classes through the upgrading of business report writing skills. An annual award of $1,000 will be made to the winner.

Paul F. Lorenz/Texas Instruments Excellence Awards: These awards are based on undergraduate academic excellence. A tuition scholarship for the senior year will be awarded to the junior student who has the highest overall GPA in the School of Business Administration. In addition, awards of $1,000 and $500 will be made to two graduating seniors with the highest overall GPA.

Golden State Minority Foundation Scholarship: Applicants with junior or senior status must have a 3.00 GPA, show financial need and disadvantaged status, as well as leadership capabilities and community involvement. Minorities are encouraged to apply.

Alumni Scholarship: Two $750 awards are given annually to full-time students with junior or senior standing. Applicants must have an overall GPA of at least 3.00 (with 3.40 in their first 59 credits) and a 3.30 minimum GPA in School of Business Administration courses.

Dicron Trafralian Memorial Scholarship: This scholarship is awarded annually, on a merit basis, to a continuing accounting major at Oakland University. Selection is made by the accounting faculty of the School of Business Administration. This scholarship was established in memory of Dicron Trafralian, who served in administrative capacities at Oakland University for many years.

Electronic Data Systems Scholarship: The purpose of this award is to attract high achievement students to the management information systems major. One award will be given to a junior management information systems major each year based on academic achievement. The scholarship will cover full tuition for the junior and senior years.

Course Offerings

Following are descriptions of the courses offered by the School of Business Administration. Required precore and core courses for students majoring in these programs are generally offered each fall and winter semester and during either the spring or summer session.

The 300- and 400-level courses are designed for students with major standing in the School of Business Administration. These courses have major standing as a prerequisite, except for ACC 310, MKT 302, ORG 330 and all economics (ECN) courses. The 300-level courses should be taken during the junior year (59-90 credits). Nonbusiness majors may elect 300- or 400-level courses if they meet the prerequisites (except for major standing) and if there is space in the class. School of Business Administration students have priority over majors from outside the school when registering for these courses.

Students in majors other than those in the business administration program (i.e., accounting, finance, general management, human resources management, management information systems and marketing) are limited to no more than 25 percent of their total degree credits in business courses. This 25 percent maximum includes credits earned at Oakland University and all other colleges but excludes economics (ECN) courses, QMM 250 and QMM 452.

ACCOUNTING

ACC 200 Introductory Financial Accounting (4)
Introduction to accounting information as an aid to decision-making for external users of financial statements. Students learn how to measure and record accounting data, prepare financial statements and analyze published financial accounting information.
Prerequisite: Sophomore standing. CSE 125 recommended.

ACC 210 Managerial and Cost Accounting I (4)
Analysis of accounting methods providing data for optimal managerial decisions, implementation and control. Topics include cost allocation; cost, volume and price relationships; product cost accounting and control systems; operations and capital budgeting, and related behavioral, reporting and information processing aspects.
Prerequisite: ACC 200. CSE 125 recommended.

ACC 301 Financial Reporting and Analysis (4)
A study of financial accounting and reporting from the perspective of the user of accounting information. The course will emphasize the interpretation and analysis of specific accounting treatments rather than accounting methodology. *Accounting majors may not substitute this course for any required or elective accounting course.*
Prerequisite: ACC 200, major standing and junior standing.

ACC 310 Intermediate Financial Accounting I (3)
A study of financial accounting topics, including accounting valuation and reporting practices. Three major areas examined include financial accounting theory, current and noncurrent assets, and current and noncurrent liabilities.
Prerequisite: ACC 200, ACC 210 and junior standing. CSE 125 recommended.

ACC 311 Intermediate Financial Accounting II (3)
A continuation of ACC 310. Major financial accounting areas examined include stockholders' equity, dilutive securities, investments, income measurement issues and the preparation and analysis of financial statements.
Prerequisite: ACC 310 and major standing.

ACC 320 Managerial and Cost Accounting II (3)
An analysis of available procedures and techniques to sharpen accounting analyses for managerial planning and control. Extends subjects introduced in ACC 210 to nonmanufacturing firms, decentralized firms, transfer pricing and segment performance measurement.
Prerequisite: ACC 210, major standing and junior standing.

ACC 401 Advanced Financial Accounting (3)
Topics include accounting and reporting for business combinations, partnerships, consolidated entities, interim financial statements, and segments of business enterprises.
Prerequisite: ACC 311 and major standing.

ACC 411 Auditing (3)
Introduction to the objectives, techniques and standards of internal and external audits of the accounts of an enterprise. Generally accepted auditing standards will be critically examined.
Prerequisite: QMM 250, ACC 311 or ACC 301, and major standing.

ACC 412 Government and Not-for-Profit Accounting (3)
The characteristics of not-for-profit entities are analyzed and used to define the basic concepts of accounting for funds. Accounting and reporting principles applicable to governmental units, hospitals, schools and other nonprofit entities are discussed.
Prerequisite: ACC 311 or ACC 301, and major standing.

ACC 413 Regulatory Agencies and the Accounting Profession (3)
The nature, origin and workings of the SEC, ICC and other agencies are examined. The legal framework, registration and reporting requirements, professional liability and the continuing issue of establishing generally accepted accounting principles are studied.
Prerequisite: ACC 311 or ACC 301, and major standing.

ACC 414 Accounting Theory (3)
Selected topics of current interest in accounting theory. Opinions of the Accounting Principles Board, the Financial Accounting Standards Board and similar standard-setting committees of the accounting profession will be examined.
Prerequisite: ACC 311 and major standing.

ACC 415 Tax Accounting (3)
The concepts of taxation. The essential logic underlying the federal tax laws will be explored. The class will teach students to analyze individual and corporate income tax laws, rather than how to prepare tax returns.
Prerequisite: ACC 311 or ACC 301, and major standing.

ACC 417 International Accounting (3)
The study of financial accounting, reporting and disclosure in different nations and across international borders. Includes study of foreign currency translation and efforts to harmonize accounting standards.
Prerequisite: ACC 311 or ACC 301, and major standing.

ACC 418 Computer-based Accounting Systems (3)
A study of the use of accounting information as part of a total management information system. Topics include financial controls, transaction data processing, internal security and auditing. Covers computer hardware, software and data systems analysis.
Prerequisite: ACC 200, MIS 300 and major standing.

ACC 420 Advanced Auditing Topics (3)
Examination of advanced topics in auditing. Emphasizes philosophy, standards, concepts and problem areas.
Prerequisite: ACC 411 and major standing.

ACC 421 Advanced Tax Topics (3)
Examination of advanced topics in tax accounting.
Prerequisite: ACC 415 and major standing.

ACC 480 Contemporary Accounting Issues (3)
An examination of the changes in accounting associated with infusions of theories of other disciplines: behavioral science, organizational theory, economic theory and sociology. Also considered are changes in the role of the accountant. The course may be repeated for a total of 6 credits.
Prerequisite: ACC 311 or ACC 301, and major standing.

ACC 490 Independent Study (2, 3)
Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term.
Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

ECONOMICS

ECN 150 Basic Economics (4)
Survey of economics and its application to problems faced by societies, firms and individuals. Includes both analytical and institutional aspects of economics. Intended for students not planning to major in economics or business. *Satisfies the university general education requirement in social science.* (Generally offered fall and winter semester.)
Prerequisite: High school algebra.

ECN 200 Principles of Macroeconomics (4)
Examines the methodology of economics, scarcity, opportunity cost, supply and demand, market processes, determination of national income, fiscal policy, money and banking, monetary policy, inflation and unemployment, trade and international adjustments, development and alternative economic systems. Not open to students who have completed ECN 150. *Satisfies the university general education requirement in social science.* (Generally offered every term.)
Prerequisite: High school algebra and sophomore standing.

ECN 201 Principles of Microeconomics (4)
Examines elasticity, markets, theory of consumer demand, market failures, organization of the firm, production and cost in the long and short runs, competition, externalities, legal and regulatory environment of business. (Generally offered every term.)
Prerequisite: ECN 200 or ECN 150, and sophomore standing.

ECN 210 Principles of Economics (6)
Principles of macroeconomics and microeconomics, covering the same topics as ECN 200 and ECN 201 combined, but at an accelerated pace. Intended for highly motivated students with good writing and math ability. Not open to students who have completed a previous college economics course. *Satisfies the university general education requirement in social science.* (Generally offered fall and winter semester.)
Prerequisite: High school algebra, sophomore standing and a GPA of 3.00 or better.

ECN 301 Intermediate Microeconomics (3)
Examines consumer behavior, cost functions, constrained optimization, decisions under uncertainty, price and output determination in competitive markets, the basis for regulatory law and implications of microeconomic decisions for the efficiency of the market economy. Case studies will be analyzed. (Generally offered every term.)
Prerequisite: ECN 201 or ECN 210, and MTH 122, or permission of instructor.

ECN 302 Intermediate Macroeconomics (4)
Construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of alternative models, international interrelationships, assessment of contemporary controversies in national policy and introduction to large econometric models. (Generally offered every winter semester.)
Prerequisite: ECN 201 or ECN 210, and MTH 122, or permission of instructor.

ECN 309 Introduction to Urban and Regional Economics (4)
Topics include development of cities, historical trends in urbanization of the U.S. and other countries, state and local revenues and expenditures, cost-benefit analysis, externalities and public goods, the environment, housing and poverty, regional issues, and economics of Michigan. (Generally offered fall semester of even years.)
Prerequisite: ECN 150 or ECN 201 or ECN 210.

ECN 310 Economics of the Environment (4)
Application of the tools of economic analysis to problems of energy, ecology and the environment. Topics include externalities and public goods, optimum use of fixed national resources, limits to economic growth and ecological aspects of principal pollution problems. (Generally offered winter semester of even years).
Prerequisite: ECN 150 or ECN 201 or ECN 210.

ECN 321 Money, Credit and the Economy (4)
The course focuses on three areas: an introduction to banking and financial institutions, study of the U.S. money and capital markets, and the study of money's impact on the nation's economy. (Generally offered fall and winter semesters and spring session.)
Prerequisite: ECN 150 or ECN 201 or ECN 210.

ECN 326 Economic Development (4)
Application of the tools of economic analysis to the problems of economic development and growth. (Generally offered winter semester of odd years.)
Prerequisite: ECN 150 or ECN 201 or ECN 210.

ECN 328 American Economic Development (4)
Models and case studies of selected events in the growth and development of the American economy, from colonial times to the present. Emphasizes the evolution of historical thought under the impact of economic analysis. (Generally offered fall semester of even years.)
Prerequisite: ECN 150 or ECN 201 or ECN 210.

ECN 333 History of Economic Thought (4)
Surveys the history and development of economic theory. Examines the development of classical theory, the Marxian challenge, the neo-classical refinement (marginal revolution) and the Keynesian revolution. Emphasis will be placed on the development of economics as intellectual history. (Generally offered fall semester of odd years.)
Prerequisite: ECN 150 or ECN 200.

ECN 338 Economics of Human Resources (4)
Survey of the nature of labor markets, education and investment in human capital, unemployment, geographic and occupational mobility of labor, and effects of race, sex and age in labor markets. (Generally offered fall semester of odd years.)
Prerequisite: ECN 150 or ECN 201 or ECN 210.

ECN 342 Economic Analysis of Selected Nations (4)
Economic analysis of selected nation(s), emphasizing historical, political, and international determinants of trade, production, employment, migration, growth, inflation, and economic policies. Selected countries will be announced in prior semester. (Generally offered winter semester of even years.)
Prerequisite: ECN 150 or ECN 201 or ECN 210.

ECN 350 Comparative Economic Systems (4)
Comparative analysis of alternative forms of economic organization. The relationships between the economic system and resource allocation, pricing, income distribution and growth. Capitalism, market socialism and central planning are emphasized. (Generally offered winter semester of odd years.)
Prerequisite: ECN 201 or ECN 210 or permission of instructor.

ECN 373 International Economics (4)
An introduction to international trade and finance. Topics include the international economic and political systems, classical trade approaches, balance of payments, capital mobility, international money markets and banking, speculation, protectionism, income distribution, transfer of technology, regional blocs, economic warfare, trade and development, and the multinational firms. Not open to students who have taken ECN 473. (Generally offered every fall semester.)
Prerequisite: ECN 201 or ECN 210 or permission of instructor.

ECN 378 Economic Analysis of Law (4)
Economic analysis of basic institutions of legal systems. Emphasis is on laws that are not directly intended to regulate the economy, including property, contract, tort, criminal and procedural law. Labor and antitrust law will be discussed only tangentially. (Generally offered winter semester of even years.)
Prerequisite: ECN 201 or ECN 210 or permission of instructor.

ECN 385 Industrial Organization (4)
The structure of American industry and the factors affecting it, with emphasis on economies of scale; barriers to entry; structure-behavior relationships, including pricing, product differentiation and technical change; evaluation of performance, antitrust and regulation. (Generally offered winter semester of odd years.)
Prerequisite: ECN 201 or ECN 210 or permission of instructor.

ECN 405 Econometrics (4)
Estimation and testing of economic models using regression techniques. Includes experience with computer "packages," analytical report writing and case studies. Topics include dealing with violations of regression assumptions, binary variables, autoregressive and distributed lag models and the structure of "large" simultaneous equations models. (Generally offered every fall semester.)
Prerequisite: QMM 250 and ECN 301, or permission of instructor.

ECN 409 Urban Economics and Location Theory (4)
Application of microeconomic theory and empircal analysis to: residential choice and location of economic activities; migration patterns within and across states and metroplitan areas; major urban problems such as quality of life, transportation and optimum city size; and Michigan's economy. (Generally offered fall semester of odd yearrs.)
Prerequisite: QMM 250 and ECN 301, or permission of instructor.

ECN 411 Advanced Methods in Economics (4)
Survey of advanced methods used in economics. This course provides a comprehensive overview of techniques that are used by professional economists. (Generally offered winter semester of odd years.)
Prerequisite: ECN 301.

ECN 414 Engineering Economics (2)
Financial accounting models, relevant costs, capital budgeting, present value, rate of return, payback, taxes, depreciation. Not open to business or economics majors.

ECN 418 Seminar in Economic Policy (4)
Analysis of economic policy. Topics vary but may include resource allocation, macroeconomic stability, economic growth, energy, public choice, global economic interdependence and the environment. (Generally offered winter semester of even years.)
Prerequisite: ECN 301 and QMM 250, or permission of instructor.

ECN 456 Public Finance (4)
The role and impact of the public sector in a market economy. Includes expenditure determination, the basis of taxation in terms of equity, efficiency and flexibility, timing of cash flows, revenue source analysis, financing public debt and discussion of current problems. (Generally offered fall semester of even years.)
Prerequisite: QMM 250 and ECN 301, or permission of instructor.

ECN 467 Economics of Health Care (4)
Application of the tools of economic analysis to the health care industry and government health care policy. Examines the impact of the special characteristics of health care and the medical services industry on the pattern of health care produced, its distribution and resource allocation within the industry. (Generally offered fall semester of odd years.)
Prerequisite: QMM 250 and ECN 301, or permission of instructor.

ECN 468 Labor Economics (4)
Economic analysis of the functioning of labor markets, with emphasis on investment in human capital, the role of education, unemployment, labor market differentiation by race, sex and age, the geographic and occupational mobility of labor, and the inflation/unemployment trade-off. (Generally offered fall semester of even years.)
Prerequisite: QMM 250 and ECN 301, or permission of instructor.

ECN 473 Theory of International Trade and Finance (4)
An intensive approach to international specialization and the open economy. Topics include modern developments in trade models, trade and welfare, impact of trade policies, open economy macroeconomics, balance-of-payments analysis, stability, the determination of exchange rates under different regimes. (Generally offered winter semester of even years.)
Prerequisite: QMM 250 and ECN 301, or permission of instructor.

ECN 480 Special Topics in Economics (4)
Intensive study of a selected topic in economics. Topics vary. See *Schedule of Classes* for current offering. May be repeated for a total of 8 credits as long as the topic covered is different. (Generally offered winter semester of odd years.)
Prerequisite: ECN 301.

ECN 490 Independent Study (2, 4)
Qualified and highly motivated students may engage in individual research, directed readings, or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits.
Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

FINANCE

FIN 322 Managerial Finance I (4)
The basic elements of managerial finance. Topics include: capital budgeting techniques, financial structure and analysis, the cost of capital, working capital management and international financial management.
Prerequisite: ECN 201, ACC 200, QMM 250, major standing and junior standing.

FIN 418 Financial Institution Management and Lending (4)
An in-depth study of the management of financial institutions, with emphasis on the lending function. The course focuses on a firm-specific view of financial institution services and operations.
Prerequisite: FIN 322, FIN 421, ACC 301, and major standing.

FIN 419 International Financial Management (4)
The application of the tools of financial analysis to cases and the problems of firms that have operations in several countries.
Prerequisite: FIN 322, ACC 301 and major standing.

FIN 420 Real Estate Investment, Financing and Taxation (4)
A look at acquisition, financing, and sale of income-producing real estate. Topics to be covered include feasibility, appraisal, investment, financing and taxation.
Prerequisite: FIN 322, ACC 301 and major standing.

FIN 421 Investment Analysis (4)
Study of the aspects of security analysis and portfolio theory. Four areas are covered: investment management and the money and capital markets; the analytical procedures for appraising securities; portfolio analysis; and the assessment of capital market efficiency.
Prerequisite: FIN 322, ACC 301, and major standing.

FIN 422 Managerial Finance II (4)
The application of the tools of financial analysis to specific cases in the financial management of corporate businesses and nonprofit enterprises.
Prerequisite: FIN 322, ACC 301, and major standing.

FIN 480 Seminar — Special Topics (4)
Intensive study of a selected finance topic. The topic will vary from term to term. May be repeated for a total of 8 credits.
Prerequisite: FIN 322, FIN 421, ACC 301, and major standing.

FIN 490 Independent Study (2, 4)
Qualified and highly motivated students may engage in individual research, directed readings or group study, under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits.
Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

MANAGEMENT

MGT 350 Legal Environment of Business (3)
The legal framework of business decisions. Introduction to the legal system and a survey of government regulation of business. Legal, ethical and political issues in employment, consumer protection, antitrust and business associations.
Prerequisite: ECN 201 or ECN 210, major standing and junior standing.

MGT 423 Managing the Multinational Firm (4)
Analysis of the scope, structure and environment — legal, social, political and economic — of the multinational firm, with emphasis on management strategies of planning, marketing, location and finance across cultural and national boundaries.
Prerequisite: ECN 301 or ECN 373 and major standing.

MGT 433 Labor/Management Relations (4)
Analysis of management/employee relations in the private and public sector. Topics include factors influencing the supply and demand for labor, evolution and governance of unions, collective bargaining and public policy.
Prerequisite: ECN 201 and major standing.

MGT 435 Management Strategies and Policies (4)
Managerial problem perception and the application of economics, statistics, organizational behavior, accounting, finance, marketing and quantitative methods to the systematic analysis of case studies.
Prerequisite: Major standing, completion of business core program and senior status. For SBA majors only.

MGT 450 Business Law (4)
Survey of topics in private commercial law under the Uniform Commercial Code. Contracts, agency, property and insurance, secured transactions, and commercial paper. Legal responsibilities of the licensed professions.
Prerequisite: MGT 350 and major standing.

MGT 468 Health Care Management (4)
Application of the management tools of economics, statistics, organizational behavior, marketing, finance and quantitative methods to the systematic analysis of the management of health care institutions.
Prerequisite: Completion of business core program, ECN 467 and major standing.

MGT 480 Seminar: Current Business Topics (4)
The analysis of topics of current interest in management. Outside faculty and managers will participate in the seminar as an integral part of the course. May be repeated for a total of 8 credits.
Prerequisite: ORG 331 and major standing.

MGT 490 Independent Study (2, 4)
Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits.
Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

MANAGEMENT INFORMATION SYSTEMS

MIS 300 Management Information Systems (3)
Examination of information systems from the perspective of the manager as a user. Survey of the behavioral, organizational and systems theory foundations; the systems development process, and the integration of data processing, database management, decision support systems, office automation and telecommunications across functional areas. Includes lab exercises.
Prerequisite: CSE 125, major standing and junior standing.

MIS 304 Database Management (4)
Technology, organization, design, use, and administration of database management systems (DBMS). Includes exercises using microcomputer and mainframe DBMS packages. Formerly offered as MIS 404.
Prerequisite: A high-level programming language, MIS 300 and major standing.

MIS 316 Systems Analysis (4)
Theory and practice of designing information systems to meet user needs, including problem investigation and the analysis, design and implementation of systems. Topics include the systems development cycle, system modeling techniques, interface to database management systems, monitoring and control, review and maintenance, and project management. Includes class projects.
Prerequisite: A high-level programming language, MIS 300 and major standing.

MIS 400 Analysis of Complex Systems (3)
Modeling, instrumentation and control of complex systems. Emphasizes design, implementation and testing of information and control systems in unstructured and realistic contexts. Includes specification, evaluation and selection of hardware and software systems, ranging from applications in microcomputers to mainframes.
Prerequisite: ECN 301, MIS 316 and major standing.

MIS 405 Business Data/Telecommunications (3)
Technology, design, management, and use of data, voice, image, and video communication networks. Topics include teleprocessing, micro-mainframe links, local area networks, wide area networks, telephone systems, electronic mail, transborder data flows, and communication protocols. Includes exercises using various network configurations.
Prerequisite: MIS 300 and major standing.

MIS 407 Projects and Problem Solving (3)
An advanced communications and problem solving course in which students learn to specify and design systems for computers. Consists of field studies by teams of students leading to computerized solutions of real world problems.
Prerequisite: MIS 316, CSE 130 or 132, CSE 220 and major standing.

MIS 421 Advanced Business Applications (3)
Sophisticated business information systems will be analyzed, designed and programmed using advanced 3GL capabilities such as COBOL's report writer, relative, direct, and indexed files, and comparisons with 4 GLs. Applications in accounting, finance, marketing, human resources, and production will be emphasized.
Prerequisite: CSE 130 or CSE 132, CSE 220, and major standing.

MIS 436 Decision Support Systems (3)
Examines the design and implementation of decision support systems. Considers the roles of expert systems and artificial intelligence in decision making. Includes a critical review of theory and case studies taken from recent MIS literature.
Prerequisite: MIS 300 and major standing.

MIS 444 Simulation in Management (3)
Computer simulation models using GPSS or an equivalent simulation language, plus simulation exercises using standard programming languages. Implications of models and sensitivity analysis for forecasting, planning and decision making in the management environment are explored.
Prerequisite: CSE 130 or CSE 132, MIS 300, knowledge of BASIC or FORTRAN, and major standing.

MIS 480 Advanced Topics in MIS (3)
An advanced course involving study of current research issues and recent developments in MIS. Topics vary. See *Schedule of Classes* for current offerings. May be repeated for a total of 6 credits.
Prerequisite: MIS 300, MIS 304 or MIS 316, and major standing.

MIS 490 Independent Study (3)
Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits.
Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

MARKETING

MKT 302 Marketing (4)
Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.
Prerequisite: ECN 210 or ECN 201, and junior standing.

MKT 353 Marketing Management (4)
A study of the overall marketing strategies pertaining to problems experienced in today's economy. Uses the case study method to analyze these problems. This course requires a knowledge of spread sheets and financial statements.
Prerequisite: MKT 302 and major standing.

MKT 404 Consumer Behavior (4)
Study of factors influencing consumer behavior, structuring and managerial use of consumer decision-making models. Examination of social, psychological and economic variables of buying behavior, including learning, motivation, attitude, personality, small group dynamics, demographic and economic factors and culture.
Prerequisite: MKT 302 and major standing.

MKT 405 Marketing Research (4)
Focuses on the generation and management of information in marketing decisions. Covers the evaluation of additional marketing information, how it is acquired and used, the manager's role in market research and the researcher's role in supplying marketing information.
Prerequisite: MKT 302, QMM 250 and major standing.

MKT 406 Promotional Strategy (4)
A study of the promotional tools of advertising, public relations, sales and sales promotion. Emphasis on identifying the factors that become the basis for promotional decisions.
Prerequisite: MKT 353 and major standing.

MKT 420 Distribution Channels Management (4)
Examination of the management of marketing channel relationships. Focuses on the characteristics and social, economic and political relationships among wholesalers, agents, retailers and the other agencies that comprise distribution channels.
Prerequisite: MKT 302 and major standing.

MKT 430 Sales Management/Sales Promotion (4)
Examination of the function of sales management. Emphasis on the role of analysis, decision making, strategy formation and the impact of the "suction" or pull strategy provided by sales promotion.
Prerequisite: MKT 302 and major standing.

MKT 450 International Marketing (4)
The application of marketing principles to problems associated with marketing products and services to different nations. Cases in international marketing will be analyzed.
Prerequisite: MKT 302 and major standing.

MKT 470 Industrial Marketing (4)
Study of the area of marketing that addresses the needs of the organizational customer in industry, government, and institutions. The special challenges of the industrial market, such as assessing marketing opportunities, the organizational buying process, and formulating and evaluating industrial marketing strategy and performance are discussed.
Prerequisite: MKT 302 and major standing.

MKT 480 Seminar in Marketing (4)
Study of a selected topic or current marketing interest relevant to marketing management. Topics may include retail management, new product development or any area not covered by a specific course. May be repeated for a total of 8 credits.
Prerequisite: MKT 302 and major standing.

MKT 490 Independent Study (2, 4)
Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits.
Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

ORGANIZATIONAL BEHAVIOR

ORG 330 Introduction to Organizational Behavior (3)
Examination of the theoretical and empirical issues that affect the management of individual, group and organizational processes including structure, motivation and leadership.
Prerequisite: Junior standing; QMM 250 recommended.

ORG 331 Introduction to the Management of Human Resources (3)
Examination of applied issues relevant to the management of human resources including recruitment, selection, performance appraisal, introduction to applied research, international human resources management and organizational development. Projects applying course concepts are required.
Prerequisite: ORG 330 and major standing.

ORG 430 Organizational Research Methods (4)
Use of various behavioral research strategies as input for managerial problem solving. Review of data collection and feedback procedures, including formal research designs and action research. A computer-based exercise will be required.
Prerequisite: ORG 331, QMM 250 and major standing.

ORG 431 Leadership and Group Performance (4)
Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.
Prerequisite: ORG 331 and major standing.

ORG 432 Motivation and Work Behavior (4)
Analysis of individual and organizational factors affecting employee motivation, performance and satisfaction in the work environment. Topics include the role of leadership, job design, environmental variation, compensation policies, goal-setting techniques and group influences, as each affects employee attitudes and behavior.
Prerequisite: ORG 331 and major standing.

ORG 434 Management of Human Resources (4)
Discussion of advanced topics in human resources. Topics include compensation, employee involvement, information systems, development, assessment and selection. A project is required.
Prerequisite: ORG 331, QMM 250 and major standing.

ORG 480 Topics in Organizational Management (4)
Intensive study of a selected topic relevant to organizational behavior and/or human resource management. Topics will vary from term to term and may include career development, compensation, men and women at work, industrial health and safety, management across cultures and power in organizations. May be repeated for a total of 8 credits.
Prerequisite: ORG 331 and major standing.

ORG 490 Independent Study (2, 4)
Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits.
Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

PRODUCTION AND OPERATIONS MANAGEMENT

POM 343 Operations Management (4)
Study of operations of manufacturing and service organizations. Introduction to operational design and control issues such as forecasting, capacity planning, facility location and layout, production control, material requirements planning, scheduling, and quality assurance. Includes international, legal, and ethical aspects, as well as computer exercises. Previously listed as QMM 343.
Prerequisite: QMM 250 or STA 226, junior standing and major standing.

POM 441 Manufacturing Planning and Control (4)
Definitions, techniques, and practices in manufacturing applications, including traditional manufacturing techniques as well as current issues such as cellular and flexible manufacturing systems. Emphasizes differences between American and foreign manufacturing techniques. Previously listed as QMM 441.
Prerequisite: POM 343 and major standing.

POM 445 Cases in Operations Management (4)
Analysis of diverse cases from the perspective of the operations function in service and manufacturing organizations. Cases are descriptive of actual operating situations. Covers situations which lend themselves to analytical and computer techniques as well as problems involving subjective judgment and creativity in translating theory into practice. Previously listed as QMM 445.
Prerequisite: POM 343 and major standing.

POM 448 Project Management Techniques (4)
An examination of the various math-based techniques for managing projects. The topics include Program Evaluation Review Technique (PERT) and Critical Path Method (CPM). Includes computer exercises. Previously listed as QMM 448.
Prerequisite: POM 343 and major standing.

POM 480 Special Topics in Operations Management (4)
Intensive study of a selected topic in production/operations management. Topics vary. See *Schedule of Classes* for current offering. May be repeated for a total of 8 credits as long as the topic covered is different.
Prerequisite: POM 343 and major standing.

POM 490 Independent Study (2, 4)
Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits.
Prerequisite: An overall grade point average of 3.00 or better, major standing, and an approved contract prior to registration.

QUANTITATIVE METHODS

QMM 250 Statistical Methods (6)
Statistical techniques useful in management and economic analysis. Emphasis on statistical description, hypothesis testing, statistical quality control, time series analysis, ANOVA, estimation and regression techniques. Includes extensive computer exercises.
Prerequisite: MTH 122 or MTH 154, and CSE 125 or CSE 130.

QMM 440 Management Science (4)
Overview of quantitative methods used in managerial decision making. Includes decision analysis, linear, integer, and dynamic programming, networks, PERT/CPM, simulation, waiting-line models, and Markov chains. Emphasizes the use of computer software in formulation and analysis of management science models.
Prerequisite: QMM 250, ECN 301 and major standing.

QMM 452 Forecasting (4)
Survey of analytical and quantitative methods for financial and operational planning. Includes exposure to commercial forecasting services and behavioral issues affecting the use of forecasting information within the organization. Extensive use of computer "packages" to prepare written and oral forecasts based on real data.
Prerequisite: QMM 250 or STA 226 and major standing, or permission of instructor.

QMM 490 Independent Study (2, 4)
Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of 8 credits. Prerequisite: An overall grade point average of 3.00 or better, major standing and an approved contract prior to registration.

SCHOOL OF EDUCATION AND HUMAN SERVICES

544 O'DOWD HALL (313) 370-3050

Dean: *Gerald J. Pine*

Associate Dean: *F. James Clatworthy*

Office of the Dean: *Jean Goebel, adviser; Asa Hilliard, adjunct professor of education; Jean Kirsch-Sullivan, administrative assistant to the dean; Patricia Loncharich, adviser; Barbara G. McCrory, adviser; Geraldine Palmer, coordinator of school and field services*

Continuum Center: *Elinor Waters, director; Jane Goodman, associate director; Roberta "Jeff" Daily, counselor/trainer; Judith Hoppin, counselor/trainer; Mary Lou Stone, coordinator, Older Adult Project; Joanne Marlowe, coordinator, Alliance Project*

Ken Morris Center for the Study of Labor and Work: *David Cooper, director; Michael Long, program manager; Atvilla Moon, program specialist; Prince Moon, program specialist; Symantha Myrick, program specialist;*

Lowry Early Childhood Center: *Gerald G. Freeman, director; Katherine Barney, acting program coordinator*

Institute for Action Research and Professional Development: *Gerald J. Pine, co-director; Donald M. Miller, co-director*

Programs Offered

The School of Education and Human Services offers programs designed to prepare students for careers in teaching and related human service activities. The programs include a Bachelor of Science in elementary education, teaching certification for selected programs in secondary education and a Bachelor of Science in human resource development with specialization in either human services or training and development. A minor in human resource development and a concentration in labor studies are also available. Students considering a major in elementary education should consult the *Admissions* section for specific preparation requirements.

The School of Education and Human Services offers programs leading to the Doctor of Philosophy in reading, the Education Specialist in school administration, the Master of Arts in counseling, and the Master of Arts in Teaching in four areas: early childhood; curriculum, instruction and leadership; reading and language arts education; and special education. In addition, programs leading to a Master of Arts degree in mathematics and the Master of Arts in Teaching in English are offered jointly by the School of Education and Human Services and the College of Arts and Sciences. For information on these programs, see the *Oakland University Graduate Catalog.*

Additional Services

Advising Center

The S.E.H.S. Advising Center is responsible for providing academic advising and career counseling for students in the Bachelor of Science degree in elementary education and secondary education, initial certification for second undergraduate degree students and the Bachelor of Science degree in human resource development with specializations in human services and training and development.

Continuum Center

The Continuum Center is an adult counseling center that assists men and women of all ages in personal exploration and planning. Workshops for personal, career and professional development are offered, as well as individual counseling. Workshops and training in such areas as supervisory training, assertiveness training, career or retirement planning and communications also are offered on a contractual basis.

Lowry Early Childhood Center

The Lowry Early Childhood Center provides care to young children, toddlers through kindergarten-age. The center is a research facility for students and faculty concerned about child growth and development. It is a training site for students enrolled in the School of Education and Human Services human development and child studies courses.

Ken Morris Center for the Study of Labor and Work

The Ken Morris Center for the Study of Labor and Work provides teaching, research, consultation and public service activities for labor organizations and their members. It coordinates the Concentration in Labor Studies, and oversees other credit and non-credit courses, primarily for adult working students who are active in unions. Courses, conferences, residential institutes and special lectures and training, taught at on- and off-campus locations, are offered on topics related to work, the needs of working people and labor organizations, and other areas of special concern to union members, leaders and staff.

Institute for Action Research and Professional Development

The Institute for Action Research and Professional Development facilitates action research and professional development conducted in collaboration with schools, school districts, education service agencies and other institutions and organizations. Field-based studies on teaching and learning are carried out in cooperation with school building and program teams at the preprimary, elementary and secondary school levels. Examinations are made of alternative practices in instruction, curriculum and professional development. Outstanding practitioners are occasionally affiliated as teacher-researchers for selected studies and projects.

Office of School and Field Services

The Office of School and Field Services is responsible for the coordination of all off-campus sections of graduate education courses, as well as the placement of pre-service interns and special education practicum students. Special credit offerings, educational forums and conferences also are coordinated through this office.

Educational Resources Laboratory

The Educational Resources Laboratory provides support for the academic, research and development activities of the School of Education and Human Services. Patrons are provided with a functional setting for the examination, study, research, development, production and evaluation of instructional materials and technologies. Workshops, seminars and consultation services in instructional technology are available.

Board of Visitors

The Board of Visitors of the School of Education and Human Services is composed of outstanding leaders in the field of education and human services. The Board of Visitors' role is to advise and counsel the dean and faculty of the school. The board also assists the school in providing programs responsive to the learning and training needs of the public schools and human service agencies as they cope with changing society in the complex technological and diverse cultural environment of southeastern Michigan.

Members of the Board of Visitors are:
Sandra Adams, Teacher, Costello Elementary School, Troy
C. Danford Austin, State Associate Superintendent of the Bureau of Post Secondary Education
Mary Jane Bauer, Teacher, Seaholm High School, Birmingham
W. Robert Docking, Superintendent, Bloomfield Hills School District
William G. Keane, Superintendent, Oakland Intermediate School District
Charles T. King, Consultant, Professional Development/Human Rights Department, Michigan Education Association
Eleanor Monks, Former Chair, Rochester Community Schools Board of Trustees
Joseph Nicita, Superintendent, Macomb Intermediate School District
John Pagen, Former Superintendent, Warren Consolidated Schools
William H. Saville, Superintendent, Avondale Schools
John M. Schultz, Superintendent, Rochester Community School District
Dana Whitmer, Former Superintendent, Pontiac School District
Lisa Woodring, Teacher, DeKeyser Elementary School, Utica

DEPARTMENT OF CURRICULUM, INSTRUCTION AND LEADERSHIP

507 O'DOWD HALL (313) 370-3070

Chairperson: *Sharon P. Muir*

Professor emeritus: *Patrick J. Johnson*

Professors: *James W. Hughes, Jacqueline I. Lougheed, Sharon P. Muir, Roderic E. Righter*

Associate professors: *Beverley B. Geltner, Steven W. Gilbert*

Assistant professors: *Julia J. Dorminey, Joyce A. Eckart, Dawn M. Pickard Dyanne M. Tracy*

General Information

The Department of Curriculum, Instruction and Leadership offers courses designed to prepare students for careers in teaching. The courses are designed for a Bachelor of Science in elementary education and for certification in secondary education.

The undergraduate elementary education program enables students to earn concurrently a B.S. degree from Oakland University and recommendation for a Michigan Elementary Provisional Certificate (see *Michigan Teacher Certification*). The program is approved by the National Council for Accreditation of Teacher Education (NCATE). Students who hold a bachelor's degree pursue the program as second undergraduates.

The secondary education program enables students who earn a baccalaureate degree in approved programs to be recommended for a Michigan Secondary Provisional Certificate (see *Michigan Teacher Certification*). Only students who are admitted to Pre-secondary Education as juniors are eligible to participate.

Elementary Education

Pre-elementary Education

Students who wish to pursue an elementary education major are admitted by the Admissions Office if they possess a 2.80 high school grade point average (GPA) or a 2.70 college GPA. (Students so admitted are given pre-elementary education status.) Students who hold a baccalaureate degree in another discipline also apply through the Admissions Office as second undergraduates with department approval. Second undergraduate students must meet the undergraduate degree program requirements. After admission as second undergraduates, students meet with personnel in the SEHS Advising Center to determine equivalencies from their baccalaureate program (472 O'Dowd Hall, 370-4182).

Elementary education candidacy

Admission to elementary education candidacy is a prerequisite for some courses in the elementary education major (see course descriptions or *Schedule of Classes*). Students who hold pre-elementary education status must satisfy three criteria for admission to elementary education candidacy:

1. A grade point average (GPA) of at least 2.70, including a minimum grade of 2.0 in all courses. The GPA must represent at least 24 credits and includes all courses completed at Oakland University and at all previous colleges at the time the student applies for candidacy. Education courses will not be considered.
2. A minimum score of 174 on each Pre-professional Skills Test (PPST) subtest — reading, writing and mathematics. The test, which may be taken at any site approved by the Educational Testing Service, is administered at Oakland at least twice each year. Information on test registration is available from the SEHS Advising Center.
3. Completion of the writing proficiency requirement.

To obtain candidacy in elementary education, students present the original PPST score report to the SEHS Advising Center, which verifies the GPA and initiates change of status for qualified students. Students retain candidacy status so long as the GPA needed for admission to the major is maintained. Students who lose candidacy are reassigned to pre-elementary education status. Personnel in the School of Education and Human Services (SEHS) Advising Center provide academic advice for elementary education candidates.

Admission to the major

Students who hold elementary education candidacy must complete EED 110 before applying for the major or professional program.

Admission, which occurs once each year, is selective; meeting the minimum requirements does not guarantee admission to the major.

Minimum criteria for admission to the major are:

1. Candidacy in elementary education
2. Completion of all general education requirements
3. A minimum of 70 documented clock hours' experience working with children in non-custodial activities, 50 hours within the last three years and 20 hours during the calendar year prior to application. Field experience in EED 110 does not meet this requirement. Examples of activities and documentation forms are available from the SEHS Advising Center.
4. 2.0 minimum grade in each course
5. Minimum grade of 2.8 in EED 110
6. Submission of a completed application by the published deadline, including an essay administered at an announced date and time.

Qualitative criteria may be required as well. Some preference is given to students who have completed a majority of their credits at Oakland University. The program seeks students who are committed to teaching in a multicultural school or district. Male and minority students are especially encouraged to apply.

Advising

The School of Education and Human Services Advising Center is located in 472 O'Dowd Hall (370-4182). All students are required to attend an orientation to plan their first semester courses. During the first semester at Oakland, students should schedule an advising appointment to review the program plan and degree requirements. In subsequent semesters, students should schedule advising appointments far in advance of pre-registration time so that the staff may adequately serve their needs.

Requirements for the Bachelor of Science in Elementary Education

Program requirements

Admission to the major is required before beginning a four-semester professional sequence. Pre-elementary education students plan their course work with an adviser in the School of Education and Human Services Advising Center. To earn the B.S. degree, they must:

1. Complete a minimum of 124 credits. At least 32 credits, including the last 8, must be taken at Oakland University and at least 32 credits must be at the 300-level or above. Education credits may not be older than six years upon completion of the program. Courses transferred from NCATE-accredited colleges may be approved.
2. Meet university general education requirements, including special general education requirements for elementary education majors (described below).
3. Complete a major or two minor concentrations (described below).
4. Complete MTE 210, SCS 105, 4 credits of pre-professional course work and 60 credits of professional education course work.
5. Earn a minimum grade of 2.0 in each non-education course, a minimum grade of 2.0 in EED 455 (2.8 required for certification), and a minimum grade of 2.8 in each remaining pre-professional and professional course; maintain a 2.70 GPA in non-education courses.
6. Maintain a cumulative GPA of at least 2.70.
7. Be in compliance with all legal curricular requirements for Michigan certification.

General Education

Elementary education majors must take STA 225 to meet the university general education requirement in mathematics. Recommended course work in other areas follows:

Literature: Choose one from ENG 100, ENG 224 or ENG 241
Language: ALS 176 is preferred unless modern language is a major or minor
Western Civilization: HST 114 or HST 115
Social Science: One from SOC 100, PSY 100, PSY 130, PS 100 or ECN 150
Natural Science/Technology: Choose one from BIO 110, BIO 190, BIO 300, BIO 104, BIO 200 or CHM 300
Art: Any course listed in the catalog that meets the requirement.
International Studies: Any course listed in the catalog that meets the requirement.

Major/minor concentrations

In keeping with state requirements, one major concentration or two minor concentrations selected from the following subject areas is/are required for certification. The concentration identifies subjects that a graduate is certified to teach in grades 6-8. Course work is limited to the classes listed or their equivalents.

History/social science minor (24 credits) — HST 114 and 115; PS 100; 4 credits of ECN; 4 credits from IS 210, 220, 230, 250, 270 preferred, or IS 240, 260; 4 credits from the following electives: AMS 300, AN 102, 222; HST 101, 102, 218; PSY 100; SOC 100, SOC 190, WS 481 or a course in geography. (Physical geography will not meet this social studies requirement.)

History/social science major (36 credits) — Meet requirements of the social studies minor plus 12 additional credits of IS or the social studies minor electives.

Language arts minor (24 credits) — RDG 332; ALS 176; 4 credits of literature from ENG 100, 105, 111, 214, 220, 224, 241, 290, 301, 303; and 12 credits from literature electives or the following: ALS 102; ENG 215; LIN/SCN 207; SCN 201, 202; THA 100, 110, 201, 210, 213, 220, 300, 310.

Language arts major (36 credits) — Meet requirements of the language arts minor plus 12 additional credits selected from literature or language arts minor electives.

Mathematics minor (20 credits) — MTE 210, 211, 410; MTH 141; STA 225. Students who test out of MTH 141 must elect one course from: MTH 121, 122, 154, 185.

Mathematics major (30 credits) — Meet requirements of the mathematics minor plus at least 10 credits from: APM 263; CSE 130, 232, 233, 235; MTH 121, 122, 154, 155, 185, 254, 256, 372; STA 226, 322, 323, 324.

Modern languages minor (24 credits) — All credits must be in one language, SPN, FRH, or GRM; 8 must be at the 300-400 level.

Modern languages major (36 credits) — Meet requirements of the modern languages minor plus an additional 12 credits at the 300-400 level.

Science minor (24 credits) — SCS 105; 4 credits from BIO 104, 110, 190/195, 200, or 300; 4 credits from CHM 104 or 140; 4 credits from ENV 308, 322; 4 credits from PHY 104, 105, 106, 107; and 4 credits from PHY 115, 127, or 100/101.

Science major (36 credits) — Meet requirements of the science minor plus an additional 12 credits from the minor electives or the following: BIO 301, 303, 311, 313, 317, 323/324; 325, 327, 341, 373, 375, 377, 387; CHM 201, 203, 204, 234, 235, 453/457, 454/457; ENV 461, 474; PHY 102/100, 107, 158, 306; SCS 490.

An additional major or minor concentration in fine arts may be added to the certificate. Students may pursue a general concentration of art, music and theatre or a specialized concentration in one area — art, music or theatre.

Fine arts general minor (24 credits) — 4 credits AH; 4 credits SA; 4 credits MUT or MUS excluding music education; 4 credits MUE and/or MUA except MUA 373; 4 credits THA 100, 110, 220 or 310; 4 credits THA 213 or 350.

Fine arts specialized minor (24 credits) — All credits are in one area — art, music or theatre — including a minimum of 8 credits in history, theory, literature or appreciation (AH or MUT, MUS or THA 100, 201, 300) and a minimum of 8 credits in application or performance (SA or MUE, MUA except MUA 373, or THA 110, 210, 213, 220 or 310).

Fine arts general major (36 credits) — Meet requirements of the fine arts general minor plus 4 credits AH or SA; 4 credits MUA, MUT or MUS including music education; 4 credits THA.

Fine arts specialized major (36 credits) — Meet requirements of the fine arts specialized minor plus 12 credits in the same area — art, music or theatre — with prior approval of an adviser.

Professional program

Upon being admitted to the program, students are expected to maintain continuous enrollment during the fall and winter semesters in at least one professional education course. The professional education courses are: EED 302, 305, 354, 420, 470; FE 210, 215; IST 396; RDG 331, 333, 414; SE 355. A recommended sequence is provided at the time of admission. A field experience is required concurrently with methods courses. Prerequisites are required for some professional education courses (i.e., FE 215 and SCS 105 for EED 305, STA 225 for EED 354, and FE 215 and MTE 210 for EED 302). Students who lose eligibility may retake a course; readmission then is automatic if the requirement is met. Continuation in the program also is based on the expectation that students demonstrate the characteristics of and conduct themselves as members of the teaching profession.

Field placements: Participation in field placements is required each fall and winter semester during which a student enrolls in a professional education class. The department arranges placements that ensure a variety of experiences, including in two urban school districts — Detroit and Pontiac.

Internship: EED 455 must be taken in the final semester of one's degree program. *Application for the internship, EED 455, must be made one full semester in advance of the intended enrollment.* Contact the department for date of required orientation meeting (early each semester) at which application is made. Students must petition the department to enroll in more than 16 credits during the internship semester. Admission criteria for the internship are: a) satisfactory grade point average and minimum required grades; b) completion of all professional education course work, except RDG 414; c) satisfactory completion of content area test(s) as required by the Michigan Department of Education. Students who do not successfully complete the content area tests will be offered an alternative to EED 455 for earning the B.S. degree without certification. A minimum grade of 2.0 in EED 455 is required for graduation, a minimum grade of 2.8 for certification.

Secondary Education

The Secondary Teacher Education Program (STEP) is a five-year program that includes a one-year, 12-credit post-baccalaureate internship and 27 additional credits in professional education.

Major and minor. Students must complete a baccalaureate degree with a minimum grade point average (GPA) of 2.80 in both a major and a 20-credit secondary teaching minor. Majors in biology, chemistry, mathematics, modern languages and literatures, and physics may seek secondary certification in the secondary teacher education program (see program descriptions in the related Arts and Sciences departments). A program in music education also exists, but it is not currently part of STEP (see program description for Department of Music, Theatre and Dance). At least 8 credits in the minor must be taken at Oakland University.

Advising is available through the SEHS Advising Center (472 O'Dowd Hall) and through advisers in the major departments in the College of Arts and Sciences.

Pre-secondary education

The pre-secondary program begins at the end of the sophomore year or at the end of the first semester of the junior year. Students apply to the SEHS Advising Center no later than November 15 for winter admission or April 1 for fall admission. Students applying for admission should meet the following requirements:

1. A minimum GPA of 2.80 in all college or university work
2. A minimum grade of 3.0 in RHT 101
3. A minimum score of 174 on each Pre-Professional Skills Test (PPST) subtest — reading, writing and mathematics. The test, which may be taken at any site approved by the Educational Testing Service (ETS) is administered at Oakland at least twice each year. Information on test registration is available from the SEHS Advising Center.
4. A plan of study that ensures completion of baccalaureate requirements in a major and a minor approved by a department adviser.

Students admitted to the pre-secondary program may enroll in SED 300.

Admission to the professional program

Students who successfully complete SED 300 may apply for admission to the STEP at the end of the junior year. Successful completion of SED 300 does not guarantee admission, which is competitive.

The professional program normally is completed in the senior year and one year of post-baccalaureate work. The professional sequence is: RDG 538, FE 345/608, SED 427, SED 428, SE 501, FE 601 and SED 455.

Internship. Interns enroll in SED 455. Permission from the Secondary Education Coordinator is required to enroll concurrently in courses other than SED 428 and SE 501.

Michigan teacher certification

Successful completion of requirements for the B.S. in elementary education and a minimum grade of 2.8 in EED 455 and meeting additional requirements that may be established by the Michigan Department of Education are required in order to be recommended for a provisional elementary certificate. Exit tests in content areas are scheduled to begin in September 1991, for certification applicants. Applicants should be aware that a conviction for a felony or for a misdemeanor involving moral turpitude of a minor may constitute grounds for denial of a certificate by the State of Michigan.

Teaching Certification for Elementary Education: The Michigan Elementary Provisional Certificate is valid for teaching all subjects in grades K-5, all subjects in self-contained classrooms for grades 6-8 in which a majority of the instruction is provided by one teacher, and in majors and minors in departmentalized programs for grades 6-8.

Teaching Certification for Secondary Education: The Michigan Secondary Provisional Certificate is valid for teaching all subjects in grades 7-8 and in content area majors or minors in grades 9-12.

Course Offerings

For FE and SE course descriptions, see the Department of Human Development and Child Studies; for RDG and IST courses, see the Department of Reading and Language Arts.

ELEMENTARY EDUCATION

EED 110 Public Education for the Future (4)
Assists pre-elementary education majors in deciding whether or not to pursue education as a career. Examines, through lectures and extensive written assignments, topics pertaining to public education. Includes a required field experience.
Prerequisite: Oakland University writing proficiency and elementary education candidacy.

EED 302 Teaching Mathematics in the Elementary School (4)
Assists prospective teachers in developing sound pedagogical strategies and instructional techniques for teaching mathematics in the elementary school. Includes a required field experience.
Prerequisite: MTE 210, admission to major and FE 215.

EED 305 Teaching Science to Children (4)
Develops philosophies, rationale, and methods for teaching elementary school science. Explores knowledge and skills for planning instruction, using instructional models, integrating the curriculum, using current instructional materials and evaluating outcomes. Includes a required field experience and a weekend field trip; additional field experiences available.
Prerequisite: SCS 105, admission to major and FE 215.

EED 354 Testing and Assessment for Teachers (4)
Prepares a teacher-in-training to make effective use of formal and informal teacher-created assessment techniques in the process of planning, implementing and evaluating instruction. Includes a required field experience.
Prerequisite: STA 225 and admission to major.

EED 420 Interaction Laboratory for Teacher Development (4)
Acquaints prospective teachers with the importance of human interactive skills, including sensitivity to cultural differences. Provides understanding of the flexible line separating personal and professional behavior. Includes student involvement in role-playing and action-oriented problem solving. Includes a required field experience.
Prerequisite: Admission to major.

EED 455 Internship in Elementary Education (12)
Provides teaching and other appropriate activities in an area classroom with guidance by a university supervisor and a cooperating teacher. General and specific instructional concerns of interns are explored in five or more concurrent seminars. Completion of a program evaluation survey is required before a grade is reported to the registrar.
Prerequisite: See program requirements — internship.
Corequisite: RDG 414.

EED 470 Teaching Social Studies in the Elementary School (4)
Examines instructional objectives and strategies, curriculum materials and evaluative procedures for social studies education. Upon completion of the course, students are able to develop, defend and implement an elementary social studies program. Includes a required field experience.
Prerequisite: Admission to major and FE 215.

EED 481 Gender Socialization in Schools (4)
Provides an understanding of the role gender plays in teaching and learning, with emphasis upon socialization of girls and women in schools. Assists prospective teachers, parents and others in designing programs that reduce gender bias in our educational system. Identical with WS 481.

EED 490 Independent Study (2 or 4)
Pursues directed individual reading and research. May include a field placement as well as development of specific teaching materials. May be repeated for a total of 4 credits.
Prerequisite: Permission of department (present written consent by faculty who will supervise study).

SCIENCE STUDIES

SCS 105 Science for the Elementary Teacher (4)
Develops science concepts and processes based on recent elementary school curricula in the fields of earth, physical and chemical science. For elementary education majors only; includes laboratory experiences.
Prerequisite: Elementary education candidacy.

SCS 490 Independent Problems in Science Education (2 or 4)
Individual work in science for educators. Credits may be applied to a major or minor in science for teachers. May be repeated for a total of 4 credits.
Prerequisite: Permission of instructor.

SECONDARY EDUCATION

SED 300 Introduction to Secondary Education (3)
Introduces secondary teaching as a profession and career. Includes a substantial experience in an assigned secondary classroom observing and aiding a practicing teacher. Also explores current topics and issues related to education.
Prerequisite: Admission to pre-secondary education.

SED 354 Testing and Assessment for Teachers (4)
Prepares a teacher-in-training to make effective use of formal and informal teacher-created assessment techniques in the process of planning, implementing and evaluating instruction. Includes a required field experience.
Prerequisite: Admission to secondary education.

SED 427 Methods of Teaching Secondary Students (2)
Emphasizes the development of teaching strategies and human interaction techniques unique to secondary students and classrooms. Topics include discipline, motivation, instructional technology, skill assessment, evaluation and affective learning.
Prerequisite: Admission to secondary education.

SED 428 Teaching of the Major Field (4)
Develops specific knowledge, competencies and skills required for effective teaching in the student's major field.
Prerequisite: Admission to secondary education.

SED 455 Internship in Secondary Education (12)
Provides a two-semester teaching experience in an assigned classroom under the guidance of a cooperating teacher and a university supervisor. Concurrent seminars and workshops are required.
Prerequisite: Admission to secondary education.

DEPARTMENT OF HUMAN DEVELOPMENT AND CHILD STUDIES

529 O'DOWD HALL (313) 370-3077

Chairperson: *Donald M. Miller*

Distinguished professor emeritus: *Laszlo J. Hetenyi*

Professors emeriti: *Edward A. Bantel, Sidney W. Graber*

Professors: *Gerald G. Freeman, Donald M. Miller, Ronald M. Swartz*

Associate professors: *Marc Briod, Anne Cairns Federlein, Carol A. Swift*

Assistant professors: *Ann H. Atkinson, Andrew Gunsberg, Richard C. Pipan*

Special instructor: *Carrie Owens*

Within the School of Education and Human Services, the faculty of the Department of Human Development and Child Studies offer courses in early childhood, educational foundations and special education at the undergraduate level for students pursuing a career in teaching. The department houses master's degree programs in early childhood education and special education.

Course Offerings

EARLY CHILDHOOD

EC 220 Early Childhood Development — Experiences with the Young Child (4)
Child development instruction, observation and experience with focus on children and their developmental needs during infancy and early childhood, especially in the context of particular settings.
Corequisite: EC 221.

EC 221 Early Childhood Development Experience Block (1, 2, 3 or 4)
Experience in a setting with young children. One credit must be taken concurrently with EC 220 and 224. Students who take additional credits of EC 221 must be taking another early childhood course concurrently.

EC 223 Physical and Social Environment in Early Childhood Programs (4)
Various aspects of the social and physical environment for young children. Includes analysis of what makes a healthful, pleasant physical environment and how the roles and relationships of various staff members contribute to this environment.
Prerequisite: Permission of the department.

EC 224 Early Childhood Programming Activities for the Young Child (4)
Uses of various media and materials, supportive play activities, and specific art, music, science, language and other educational activities for young children. Provides a basic repertoire of skills for the early childhood staff member.
Prerequisite: EC 220 or equivalent and permission of the department.
Corequisite: EC 221.

EC 225 Health and Nutrition — Childhood (4)
Includes knowledge of basic health and safety requirements and basic nutritional and dietary needs for early childhood.
Prerequisite: Permission of the department.

EC 320 Topics in Early Childhood Curriculum (2 or 4)
Selected curriculum topics relevant to early childhood teachers, with focus on specific curriculum areas identified by advanced early childhood students or special groups working in this field. May be repeated for a total of 4 credits.
Prerequisite: Completion of at least two 200-level early childhood courses.

EC 322 Introduction to Early Childhood: Theory and Practice (4)
Introduction to the field of early childhood: growth and development of infants and young children, optimal learning environments for the young child, and methods and materials. For students who wish some background in early childhood.
Prerequisite: Permission of department.
Corequisite: EC 221.

EC 324 Parent and Community Involvement in Early Childhood Programs (4)
In-depth study of home/school coordination and education. Development of skills and sensitivities in the areas of parent education, parent-teacher conferences, utilization of parents in the classroom and working with parents in the home.
Prerequisite: At least two 200-level childhood courses, or permission of instructor.

EC 325 Learning Environment in Early Childhood (4)
In-depth study of the learning environment and curriculum in early childhood education, including theoretical and practical aspects. Analysis of curriculum areas as they relate to individual children's needs and to the total learning environment.
Prerequisite: At least two 200-level early childhood courses, to be taken with no more than one other early childhood course.

EC 326 Introduction to Early Childhood Program Operation (4)
Overview of types of program operation in early childhood. Designed to give teacher and childcare development majors the skills to direct programs which are in operation.
Prerequisite: At least two 200-level early childhood courses, to be taken with no more than one other early childhood course.

EC 450 Advanced Studies in Early Childhood (2 or 4)
Current issues affecting the field of early childhood, especially those related to current legislation, child advocacy, and the child welfare concern; research methodology appropriate for young children; and/or in-depth issues such as development of infants or exceptional children. May be repeated for a total of 4 credits.
Prerequisite: Completion of all 200-level early childhood courses and at least two 300-level early childhood courses.

EC 456 Internship in Early Childhood (12)
Work in practicum settings with young children, parents, or caregivers. Students will gradually assume total responsibility for an intensive field experience. Consists of 301 hours of on-site practicum. Includes bi-weekly seminar. No other courses may be taken concurrently and it is strongly advised that the student not be employed or take other courses. Apply September for winter, January for fall.
Prerequisite: 30 credits in early childhood courses with an overall 2.50 grade point average.

EC 490 Independent Study and Research (2 or 4)
A program of directed individual reading and research. May be repeated for a total of 4 credits.
Prerequisite: Permission of the Department of Human Development and Child Studies (granted only if students present written faculty consent to supervise their study).

FOUNDATIONS OF EDUCATION

FE 210 Social and Philosophical Issues in Elementary Education (4)
Study of elementary education in broad perspective, as both an interpersonal activity and a social institution. Topics include immediate and ultimate aims of elementary education, social and cultural differences within and between schools, and assumptions underlying school policy. Not to be taken concurrently with FE 215.
Prerequisite: Admission to elementary education, and satisfaction of the university writing proficiency requirement.

FE 215 Educational Psychology for Elementary Teachers (4)
Incorporates and places into perspective learning theories, developmental theories, biological theories and evaluation, with emphasis on the effects of varied qualities of experience during childhood and early adolescence. Includes a required field experience.
Prerequisite: Admission to elementary education and satisfaction of the university writing proficiency requirement.

FE 301 Human Nature (4)
An analysis of human nature through evolutionary, developmental, cultural and philosophical perspectives. Implications for the helping professions.

FE 344 Social and Philosophical Issues in Secondary Education (4)
Study of secondary education in broad perspective, as both an interpersonal activity and a social institution. Topics include immediate and ultimate aims of secondary education, social and cultural differences within and between schools, and assumptions underlying school policy.

FE 345 Educational Psychology for Secondary Teachers (4)
Psychological factors in learning and development are examined in lectures, class discussions and observations. These may be observations of actual teaching in the schools, or of videotapes of teaching. Attention to regular and exceptional development during the adolescent years.

SPECIAL EDUCATION

SE 355 Identifying Learning and Behavior Differences in Students (4)
Familiarizes students with the characteristics of all types of exceptional students, including the gifted and talented. Introduces special education law and services for handicapped persons. Requires field placement in a special education setting where students practice informal observation and assessment techniques for determining individual differences.

DEPARTMENT OF HUMAN RESOURCE DEVELOPMENT

143 O'DOWD HALL (313) 370-4170

Chairperson: *Robert G. Payne*

Professor emeritus: *William F. Moorhouse*

Associate professors: *John W. Atlas, F. James Clatworthy, David N. Cooper, William C. Fish, Billy Joe Minor, Robert G. Payne*

Adjunct associate professor: *Elinor Waters*

The School of Education and Human Services offers a program in human resource development (HRD) leading to a Bachelor of Science degree.

This program prepares students for service-action careers related to human problems, services and social change. It provides students with an opportunity to acquire knowledge and skills usable in a wide range of human service activities. Students may select a major specialization in human services, or training and development.

A primary goal of the program is to develop potential leaders who have the analytic, interpersonal and organizational skills to respond to human needs in an era of rapid social change. The basic approach to the program is joining understanding, skills and service. Problem-solving and decision-making abilities are developed through field experiences and on-the-job internships.

Advising

The School of Education and Human Services Advising Center is located in 472 O'Dowd Hall (370-4182). During the first semester at Oakland, students should schedule an advising appointment to review the program plan and degree requirements.

Requirements for the Bachelor of Science in Human Resource Development

To earn a Bachelor of Science degree with a major in human resource development, students must:

1. Complete a minimum of 124 credits.
2. Complete at least 32 credits at Oakland University.
3. Complete at least 32 credits in courses at the 300-level or above.
4. Take the last 8 credits needed to complete the baccalaureate degree requirements at Oakland University.
5. Have a cumulative grade point average of at least 2.50.
6. Satisfy the writing proficiency requirement (see *Undergraduate degree requirements*).
7. Complete the university general education requirement of 32 credits (see *Undergraduate degree requirements*).
8. Complete a specialization in human services or training and development. The specialization must consist of 1) a specified core of courses; and 2) supporting cognate courses, professional elective courses (HI, HRD or LE) and field placements, including an internship of at least 8 credits.

Specialization in human services

Coordinator: *John Atlas*

This specialization has been developed in cooperation with agency and industry employers in the community. It prepares students for a wide variety of human service occupations in such

fields as employment and training, probation and corrections, mental health, substance abuse, youth or family services and services for older persons. The program has been approved by the Council on Standards for Human Service Education.

Students develop helping profession competencies through human interaction courses, special topic courses in human resource development and field experiences, culminating in the internship.

Requirements for admission to the specialization

Students may apply for admission to the human services program after satisfactory completion of at least 32 semester hours of credit at an accredited college or university with a grade point average of 2.50 or better. Courses that carry no numerical or letter grades (such as S or U) are excluded from the calculation of the grade point average. Before admission, students must also have completed HI 261 or an equivalent course and HI 360, 361 or 363 with a minimum grade of 2.5 in each course and have met the university writing proficiency requirement. To continue in the program, students must maintain a minimum overall grade point average of 2.50.

Before completing the above requirements, students who have a GPA of 2.50 or better may enroll as pre-HRD majors. Grades in courses submitted for credit in the specialization in human services must be 2.0 or better.

Specialization course requirements

Students seeking a specialization in human services must:

1. Earn a minimum of 16 credits in a core consisting of HI 360, 361, 363 (prerequisite: HI 261); HRD 362 and 366.
2. Earn a minimum of 22-24 credits in cognate courses at the 200 level or above, including a) a course in human development from PSY 220, 270, 271, 331, 336 or 379; b) a course dealing with social change chosen from: HRD 401, LE 320, ECN 309, 338, PS 305, SOC 205, 301, 314, 315, 336, 346 and 350, AN 300, or a course approved by an HRD adviser; c) a course in planning research, evaluation or statistics chosen from: HRD 402, PSY 250, SOC 202 and 204, 203 or STA 225 (those who intend to pursue a Master of Social Work degree should consult with an HRD adviser regarding cognate statistics requirements); d) an ethics and behavioral foundations course: HRD 301, 302, PHL 318, PSY 310, 314, 380; e) a course in human service populations: GRY 400, PSY 313, 325, 332, 376, SOC 240, 331, 335, 465, WS 300, LE 326; f) a course in information management: RHT 335 (ENG 380 or 382 may be substituted with adviser permission). The cognate requirement may also be met by a concentration in Gerontology, Labor Education, Social Services, or Social Justice and Corrections plus a research methods course.
3. Complete a minimum of 12 credits of professional course electives carrying an HI, HRD or LE designation.
4. Complete field placements consisting of a minimum of three substantially different placements or three significantly different roles in a minimum of two settings for a total of 590 clock hours. An 8- or 12-credit internship, HRD 490, is to be completed in the senior year.

Specialization in training and development

Coordinator: *Robert G. Payne*

Training and development is the process of systematically developing human resources within a work organization to create motivation and increase efficiency. The specialization in training and development requires course work in behavioral sciences, human relations, training and program delivery. These courses provide preparation for a variety of careers in government, health and human services, and in business and industry.

An internship during the senior year provides work experience in an appropriate setting.

Requirements for admission to the specialization

Students may be admitted to the training and development specialization after completion of a minimum of 32 semester hours of credit at an accredited college or university with a minimum grade point average of 2.50; completion of HI 261 or an equivalent course; HI 360 and HI 361 or HI 363 with a minimum grade point average of 2.50; and completion of the university writing proficiency requirement.

Before applying for admission, students who have a GPA of 2.50 or better may enroll as pre-HRD majors. Grades in courses submitted for credit towards the specialization must be 2.0 or better. To continue in the program, students must maintain an overall grade point average of 2.50 or better.

Specialization course requirements

Students seeking a specialization in training and development must:

1. Earn a minimum of 24 credits in core courses, including one in each of the following six categories: a) human relations and effective interaction (prerequisite: HI 261 or equivalent): HI 360 and 361, 363, 461, or 463; b) assessment of individuals: HRD 362 or PSY 311; c) adult learning theory and design of training programs: HRD 310; d) development process: HRD 364, 368 or HI 464; e) adult instruction: HRD 420 and 421 or 422; f) professional growth: HRD 369, or an HI, HRD, LE, or VTE course approved by an adviser.
2. Earn a minimum of 22-24 credits in cognate courses. The requirement may be satisfied by completing a minor in general business (19-23 credits), a concentration in human and industrial relations (28 credits), or by earning one course in each of the following six categories (24 credits): a) writing skills for instruction: RHT 335 (ENG 380 or 382 may be substituted with adviser approval); b) organizational theory: HRD 401, LE 322, ORG 330, or 331; c) economics or accounting: ECN 150, 200, 201, 338 or ACC 200; d) planning and evaluation: HRD 402, 440, PSY 250, SOC 202 and 204 or SOC 203, STA 225; e) labor relations and employee involvement: LE 324, 326, MGT 433, HST 302, SOC 350, 354, 359 or PHL 316; f) computer literacy: CSE 125, 130 or IST 396.
3. Earn a minimum of 8 to 10 additional credits, chosen from the following categories: a) any course that counts toward the requirements for a minor in general business; b) any course listed above under either the cognate or core courses; c) any HI, HRD, LE, or VTE course.
4. Successfully complete an 8- or 12-credit internship, HRD 490, during the senior year.

Occupational/technical education within the training and development specialization

Coordinator: *Robert G. Payne*

Oakland University offers several courses for students wishing additional preparation in the occupational/technical area. The following courses may be applied as substitutions for certain requirements of the specialization in training and development, as approved by an HRD adviser: RDG 338, SE 355, VTE 300, 310, 312, 420, 421, 490.

Minor in human resource development

Coordinator: *Billy Joe Minor*

The School of Education and Human Services offers a minor in human resource development for students who wish to combine their majors with an introduction to human interaction skills and knowledge and techniques in human resource development.

To obtain a minor in human resource development, students must earn at least 24 credits in human interaction (HI) and human resource development (HRD) courses, including a minimum of 8 credits in each area; the plan of study is subject to the approval of an HRD adviser. Courses counted towards the minor must have a cumulative grade point average of 2.50 or better and no course may carry a grade less than 2.0.

Related minors and concentrations

Normally, students seeking the Bachelor of Science with a major in human resource development may not earn more than one minor or concentration. Students who wish to obtain more than one must obtain the approval of the human resource development program adviser.

The Gerontology concentration, co-sponsored by the School of Education and Human Services and the College of Arts and Sciences, is recommended for HRD students planning careers of service to older people. A description of the concentration is in the Arts and Sciences portion of the catalog.

Concentration in labor studies

Coordinator: *David N. Cooper (Ken Morris Center for the Study of Labor and Work)*

Academic advisory committee: *Lizabeth A. Barclay (Management), John Barnard (History), De Witt S. Dykes, Jr. (History), Michael Long (Ken Morris Center for the Study of Labor and Work), Billy Joe Minor (Human Resource Development), Robert G. Payne (Human Resource Development)*

Labor studies is an interdisciplinary concentration that provides an academic background for understanding the empirical and theoretical bases of labor organizations. The program may be particularly useful to individuals interested in the operational aspects of unions, including the dynamics of staff, leadership and participative roles.

The concentration is open to any student who has been admitted to the university. Core courses will be scheduled to maximize accessibility to both full-time and part-time students. Students who seek to apply credits toward a degree must contact an adviser to design a degree plan and to select appropriate courses. The following course selections are subject to prerequisite requirements as well as departmental policies.

A required application for the Labor Studies concentration is available from either the Human Resource Development or Academic Services and General Studies advising offices (121 North Foundation Hall).

The concentration requires a minimum of 22-24 credits distributed among the following four areas of preparation:

1. Core, 12 credits minimum, with the option of registering for all of the following courses:
   LE 320 Introduction to Labor Studies (4)
   LE 322 Union Structure and Governance (4)
   LE 324 Work and the Law (4)
   LE 326 Collective Bargaining and Dispute Resolution (4)
   HST 302 American Labor History (4)
2. To fulfill the remaining 12-credit requirement, students may elect additional courses from the core and/or courses from the following three cognate areas, with no more than one course from each cognate area.
   a. **Organizational Theory and Practice:**
   HRD 401 Change Process and Organizational Analysis (4)
   ORG 330 Introduction to Organizational Behavior (3)
   SOC 353 Seminar in Socio-Technical Systems (4)
   SOC 381 Theories of Modern Organizations (4)
   b. **Work Life Processes:**
   ECN 338 Economics of Human Resources (4)
   HI 363 Dynamics of Group Relationships (4)
   HI 464 Consultation (4)
   IHS 301 Industrial Hygiene I (3)
   IHS 311 Industrial Safety I (3)
   SCN 202 Group Dynamics and Communication (4)
   SCN 304 Communication in Organizations (4)

SOC 350 The Transformation of the Workplace (4)
SOC 354 Quality of Work Life (4)
SOC 359 Human Factors in Quality Control (4)

c. **Community and Society:**

HRD 302 Ethics and Personal Crises (4)
HRD 331 Community Mental Health (4)
HRD 335 Substance Abuse (4)
HRD 364 Career Development (4)
PS 110 Contemporary Political Issues (4)
PSY 235 Social Psychology (4)
PSY 326 Psychology of Social Issues (4)
SOC 331 Racial and Ethnic Relations (4)
SOC 357 Industrial Sociology (4)
SOC 455 Contemporary Work Roles, Careers and Labor Markets (4)

Course Offerings

HUMAN INTERACTION

HI 261 Fundamentals of Human Interaction (4)
Introduction to key aspects of interpersonal relationships such as self disclosure, feedback, conflict, trust and nonverbal communication. Examines various theories of healthy relationships and personal maturity. Self-appraisal, role plays, simulations and group interaction are used.

HI 360 Interviewing Practicum (2)
An application of the methods studied in HI 361. Students practice helping interview skills in a supervised laboratory setting, are video-taped, critiqued and evaluated.
Prerequisite: HI 261.
Corequisite: HI 361.

HI 361 The Helping Interview (2)
Listening and responding skills, establishing mutual trust and acceptance, gathering information and providing support in a one-to-one helping relationship. Introduction to related theory and research. Instructional techniques include role-playing and simulation.
Prerequisite: HI 261 or equivalent.
Corequisite: HI 360.

HI 363 Group Dynamics (4)
Deals with relationships among group members, including peer and supervisory interaction, in settings such as community agencies, industry and adult training. Covers such basic concepts and practices as teamwork, conflict resolution, consensus, group leadership and support groups.
Prerequisite: HI 261 or equivalent.

HI 460 Advanced Practicum (2)
An application of the theories, research, and methods studied in HI 461. Students practice introductory counseling skills in a supervised laboratory setting, are videotaped, critiqued and evaluated.
Prerequisite: HI 360.
Corequisite: HI 461.

HI 461 Introduction to Counseling (2)
Theory and practice of guidance and counseling in brief. Covers professional, ethical and legal issues in helping others. Compares major counseling approaches in both theory and application.
Prerequisite: HI 361.
Corequisite: HI 460.

HI 463 Group Facilitation (4)
Theory and practice of small group process in the helping relationship. Explores several approaches to group leadership and offers an opportunity to experience and/or lead small groups in order to prepare students to foster group interaction.
Prerequisite: HI 363.

HI 464 Consultation (4)
Includes study of processes of internal and external consultation, strategies for intervention in organization and consulting approaches in support of individual helping professionals, supervisors and administrators.
Prerequisite: Junior standing and HI 360 and HI 361 or HI 363.

HUMAN RESOURCE DEVELOPMENT

HRD 264 Educational and Career Exploration (2)
Introduction to key aspects of personal career decision making, encompassing self assessment, occupational research and the relationship between academic majors and future career options. Use of computerized career guidance systems, inventories and exercises in exploration, planning and goal setting.

HRD 301 Human Nature (4)
The various ways in which human nature has been understood, with attention to the behavioral, humanistic, Marxist, and Christian beliefs about man and their implications for policies and practices in the teaching and helping professions. Strives to develop tolerance for alternative views of man, and to appreciate the varieties of human behavior. Identical with PHL 301.
Prerequisite: RHT 101 or equivalent.

HRD 302 Ethics and Personal Crises (4)
Historical examination of perennial moral crises in sexual behavior, abortion, suicide, euthanasia, criminal punishment and war from the points of view of major historical figures in ethics. Use of ethical knowledge in helping others make moral decisions in personal life is addressed. Identical with PHL 302.
Prerequisite: RHT 101 or equivalent.

HRD 310 Training Design (4)
Adult learning theory including cognitive, affective, psychomotor domains. Instructional design models, needs analysis, occupational task analysis, development of competencies and learning objectives. Determination of appropriate training approach. Selection and evaluation of instructional materials and media. Identical with VTE 310.
Prerequisite: RHT 101 or equivalent.

HRD 331 Community Mental Health (4)
A critical examination of mental health treatment programs, community mental health centers and family-care programs. Socio-cultural factors in the onset of mental illness and roles as members of a treatment team and community resources in mental health.

HRD 335 Substance Abuse (4)
Comprehensive study of the modes of prevention and treatment programs for substance abuse. Readings and reports include basic information about various drugs and alcohol, with history, categories and definitions, misuse, abuse, legitimate use, laws, attitudes and reasons people abuse drugs.

HRD 362 Assessment of Youth and Adults (4)
Techniques in appraising people for educational, occupational and personal-social decisions. Students are introduced to measurement terminology, techniques of test administration and interpretation. Emphasis on synthesis of data in case studies and conferences.

HRD 364 Career Development (4)
Sources of occupational, educational and personal-social information. Techniques for using guidance information in the helping process. Theories of career choice and adjustment, the work ethic and life/work planning.

HRD 366 The Human Services (4)
Overview of human service work. Covers historical and philosophical bases, service populations, values and professional roles. Surveys conditions of healthy human functioning and deviancy, as well as service modalities, human systems and legislative issues.

HRD 368 Work and Training Development (4)
Study of the training function within business and industry. Emphasis is placed on the politics and organization of the training function in relationship to management, union and jointly funded projects.
Prerequisite: HRD 310, 420, 421 or permission of the instructor.

HRD 369 Field Work in HRD (2, 4, 6 or 8)
Intermediate-level supervised experiences in HRD settings such as training and personnel departments in business, industry and government, employment offices and human service agencies. Students submit application to instructor, then obtain information to seek an approved site. May be repeated for a total of 8 credits.
Prerequisite: Permission of instructor by application.

HRD 390 Special Project in HRD (2, 4, 6 or 8)
Directed reading or research in an HRD topic. May be elected for independent study. Student selects topic, obtains faculty sponsor's permission before registration and writes report. May be taken with special permission more than once, for 8 credits total.
Prerequisite: Permission of a faculty sponsor by application.

HRD 401 Change Process and Organizational Analysis (4)
Study of structure of HRD services in organizations and the processes of effecting individual and group change. Influence of assigned roles of administrators and workers on attitude and behavior. Theory and research of institutional growth and change.
Prerequisite: Junior standing and two courses in HI, HRD or VTE.

HRD 402 Program Planning and Evaluation (4)
Emphasizes skills in developing performance objectives and in organizing, writing and presenting proposals for program development. Methods of evaluation of training and development and human service programs i.e., action and survey research design.
Prerequisite: Junior standing and HRD 362.

HRD 420 Instructional Methods (2)
Methods of instructing adults in training programs using instructional materials and media. Application of adult learning theory and evaluation of learning based upon competencies. Teacher-student interaction process and use of audio-visual equipment. Identical with VTE 420.
Prerequisite: HRD 310.
Corequisite: HRD 421 or HRD 422.

HRD 421 Instruction Presentation Lab (2)
An application of the methods studied in HRD 420. Students present training program lessons and exercises in a supervised laboratory setting, are video-taped, critiqued and evaluated. Identical with VTE 421.
Corequisite: HRD 420.

HRD 422 Instructional Media Lab (2, 4, 6 or 8)
The application of instructional media production techniques. Students develop instructional media for a training program which was designed under HRD 310 or obtained from a training manager. May be taken more than once for a total of 8 credits.
Prerequisite: HRD 310.
Corequisite: HRD 420 or permission of instructor.

HRD 431 Death and Dying (4)
Seminar on the philosophical, religious, cultural and psychological issues in death and dying. Topics include: religious views of death and after-life; ethical issues in suicide and euthanasia; cultural attitudes toward death and funerals; psychological studies of counseling the dying and the bereaved; children and death; forming attitudes toward one's own death. Recommended for upper-level students only.
Prerequisite: Junior standing and two HI/HRD courses or permission of instructor.

HRD 440 Strategic Planning (4)
Development of long-range plans to accomplish the training and development mission. Simulation, group problem solving and preferred future planning used to acquire strategic planning skills.
Prerequisite: Junior standing and two HI, HRD or VTE courses.

HRD 451 Strategies for Helping Older Adults (4)
Considers physical and psychological changes occurring with aging and implications of these changes for helpers, differences in helping techniques appropriate for older people and special techniques useful for older people, such as the life review.
Prerequisite: HI 261 and PSY 331 or instructor's permission.

HRD 452 Community Resources for the Elderly (4)
Assesses community needs and services for elders and their families and ways to promote intra- and inter-agency cooperation within the aging network. Investigates services offered by senior centers, long-term care, day care and respite care organizations, home health care agencies and retirement communities.
Prerequisite: HI 261, PSY 331 or instructor's permission.

HRD 467 Workshop (2 or 4)
Opportunity for industry/agency personnel and students to focus on various programs and practices. Offered as needed to meet needs of agency or industry employers and training directors. May be taken more than once for 8 credits total.
Prerequisite: Course work or experience in the workshop topic.

HRD 469 Seminar (2 or 4)
Scope is predefined and based on a broad topic in the HRD field. Students select research areas and contribute their findings to the class. Visiting consultants and the instructor provide direction and content. May be taken more than once for a total of 8 credits.
Prerequisite: Course work or experience in the seminar topic.

HRD 490 Internship in HRD (4, 8 or 12)
A culminating experience where students apply learning in a supervised HRD setting. Students must submit application to instructor two or more months in advance, then obtain information to seek an approved site. May be repeated only with department permission.
Prerequisite: Senior standing in HRD, completion of core courses, a grade point average of at least 2.50, admission to specialization, and permission of instructor by application.

LABOR EDUCATION

LE 320 Introduction to Labor Studies (4)
Origin and development of labor organizations, emergence of collective bargaining. Identification of structures and functioning of unions. Impact of unions on the economy and body politic. Impact of unionism on technological innovation, trade, employee involvement, and changing work force.

LE 322 Union Structure and Governance (4)
Analysis of development, composition, structure, behavior, and internal operational processes of U.S. labor organizations from the local to the national federation level. Focus on organizational behavior in different unions, political processes, and issues involving union democracy and contract administration.

LE 324 Work and the Law (4)
Survey of law governing labor-management relations and the regulation of internal union affairs. Case and statutory law on rights and duties of employers and unions. Review of OSHA, ERISA, workers' compensation, unemployment compensation, EEOC, and other employment-related legislation. Identical with SOC 324.

LE 326 Collective Bargaining and Dispute Resolution (4)
Historical, legal, economic, and philosophical aspects of collective bargaining and contract administration. Analysis of bargaining data, contract provisions, simulated bargaining, and methods of dispute resolution.

VOCATIONAL AND TECHNICAL EDUCATION

VTE 300 Vocational/Technical Education (2)
Historical development, philosophy, purpose and intent of vocational and technical education including the structure, function and purposes of educational institutions in our society.
Prerequisite: Permission of instructor.

VTE 310 Training Design (4)
Identical with HRD 310.
Prerequisite: VTE 300.

VTE 312 School Safety and Health (2)
Analysis of accident causation and prevention in school facilities. Study of federal, state and local codes which apply to safety and health in schools. Review of concepts, methodology and procedures for assessment of safety and health hazards in school science laboratories and vocational education and training facilities.
Prerequisite: Permission of instructor.

VTE 401 Supervised Occupational Experience (1, 2, 3 or 4)
Directed technical-occupational experience required for vocational education teacher certification. Work must be in a trade area directly related to the area to be certified. May be taken more than once for a total of four credits.
Prerequisite: Permission of instructor.

VTE 420 Instructional Methods (2)
Identical with HRD 420.
Prerequisite: VTE 310.
Corequisite: VTE 421.

VTE 421 Instruction Presentation Lab (2)
Identical with HRD 421.
Corequisite: VTE 420.

VTE 490 Internship (2, 10)
Supervised student teaching experience in a vocational/technical education setting. Students with fewer than nine months of full-time teaching experience must register for 10 credits. Others may apply for permission to register for two credits which cover performance evaluation.
Prerequisite: 12 credits in VTE, senior standing and a minimum overall GPA of 2.50.

DEPARTMENT OF READING AND LANGUAGE ARTS

453 O'DOWD HALL (313) 370-3065

Chairperson: *George E. Coon*

Professors Emeritus: *Harold C. Cafone, Harry T. Hahn*

Professors: *Jane M. Bingham, George E. Coon, Ronald L. Cramer, W. Dorsey Hammond, Keith E. Stanovich*

Associate professors: *Richard F. Barron, Gloria T. Blatt, Robert J. Christina, Anne Porter, Robert M. Schwartz, Toni S. Walters*

As a department within the School of Education and Human Services, the instructional staff of the Reading and Language Arts Department offers courses in reading, language arts, instructional systems technology and children's literature at the undergraduate level for students pursuing a career in teaching. The department offers a master's degree program in reading and language arts, a certificate program in microcomputer applications, and a doctor of philosophy degree in reading.

Course Offerings

RDG 331 Teaching of Reading (4)
Intensive preparation for the teaching of reading skills in the elementary grades. Identification of reading readiness, problems of program construction and a variety of teaching methods are included. Includes a required field experience.
Prerequisite: Admission to major and FE 215.

RDG 332 Literature for Children (4)
The ability to evaluate children's literature critically, to understand its history, to assess children's needs and developmental levels, and to be able to select and use quality literature effectively with children are major objectives of the course.
Prerequisite: RHT 101 or equivalent.

RDG 333 Teaching the Language Arts (4)
Preparation for teaching language arts in the elementary, middle and early secondary schools. Topics include teaching composition, creative writing, oral language development, listening, spelling, reading and the application of linguistic principles. Includes a required field experience.
Prerequisite: Admission to major and FE 215.

RDG 338 Teaching Reading in the Content Areas (4)
A basic course in reading for prospective secondary teachers. Content will deal with the nature of the reading process and methods and materials for teaching the reading of English, social studies and other subjects to junior and senior high school students. Not open to elementary education majors.

RDG 414 Reading Appraisal in the Elementary Classroom (4)
Involves direct classroom appraisal of reading abilities of children in elementary school classrooms. Formal and informal diagnostic instruments are used. Diagnostic data are used for prescriptive teaching. Specifically involves reading instruction with pupils and involvement with school personnel.
Prerequisite: RDG 331.
Corequisite: EED 455.

RDG 490 Independent Study and Research (2 or 4)
A program of directed individual reading and research. May be repeated for a maximum of 4 credits.
Prerequisite: Permission of the Department of Reading and Language Arts (granted only if students present written faculty consent to supervise their study.)

IST 396 Educational Uses of Microcomputers and Related Technologies (4)
General microcomputer literacy course designed with focus on educational applications to enable education students to utilize microcomputers and related technologies for career and personal goals.

SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

248 DODGE HALL (313) 370-2217

Dean: *Howard R. Witt*

Office of the Dean: *Nan K. Loh, associate dean for research and development; Bhushan L. Bhatt, associate dean for administration; Lisa M. Birkby, assistant to the dean; Patrick Bennett, academic adviser/program coordinator; Frederick J. Lutz, engineering cooperative education coordinator*

Board of Visitors

The Board of Visitors for the School of Engineering and Computer Science is composed of leaders in industry. They assist the school in developing educational and research programs to meet the rapidly expanding requirements in the technical world. The board is available as a body or individually for consultation on such matters as curriculum, research, facilities, equipment requirements, special subjects, and long-range planning. Board members are:

Guy D. Barnicoat, Ph.D., Chairperson, Board of Visitors, President and Chief Operating Officer, Walbro Automotive Division
William G. Agnew, Ph.D., Retired Director, General Motors Research Labs
Hadi A. Akeel, Ph.D., Vice President and Chief Engineer, GMF Robotics
Allen A. Alper, Ph.D., Vice President and General Manager, Chemical and Metallurgical Division, GTE Products Corporation
Ronald R. Boltz, Vice President, Product Strategy and Regulatory Affairs, Chrysler Corporation
Gerald DeClaire, Vice President, Research and Engineering, Rockwell International
Herbert H. Dobbs, Ph.D., Consultant, Rochester, Michigan
Lamont Eltinge, Ph.D., Director of Research, Eaton Corporation
Gordon England, Vice President, Research and Engineering, General Dynamics
Albert F. Houchens, Ph.D., Director, Fabrication Technology, GM Technical Center
Sidney D. Jeffe, Vice President, Schlegel Corporation
Ronald P. Knockeart, Vice President, Research and Development, Siemens-Bendix
David B. Lantz, President, Manufacturing Engineering Division, SSOE, Inc.
Ian Macpherson, Ph.D., Director, Powertrain Engineering, Ford Motor Company
Ronald L. McIntyre, Director, Engineering Research and Development, Detroit Edison
James R. Nette, Assistant Vice President, Engineering and Operations, Michigan Bell
Donald W. Rees, Chief, Survivability Division, U.S. Army, TACOM

General Information

Accreditation

All academic programs of Oakland University are accredited by the North Central Association of Colleges and Schools. In addition, the undergraduate programs in computer, electrical, mechanical and systems engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) and the computer science program is accredited by the Computer Science Accreditation Commission of the Computing Sciences Accreditation Board (CSAB).

Undergraduate programs

The School of Engineering and Computer Science offers instruction leading to the degrees of Bachelor of Science in Engineering, with majors in computer, electrical, mechanical and systems engineering, and Bachelor of Science, with a major in computer science. In addition, programs leading to the Bachelor of Science degree in engineering chemistry and engineering physics are offered jointly with the College of Arts and Sciences.

Through its engineering programs, the School of Engineering and Computer Science 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 School of Engineering and Computer Science 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 hardware as well as the software 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, computer architecture, computer graphics, pattern recognition and scientific computation.

By selecting appropriate concentrations and minors, students can combine their studies in engineering and/or computer science with advanced preparation in a number of related fields.

The School of Engineering and Computer Science also offers a minor in computer science for nonmajors.

Professional Societies

The school has a number of professional societies like the Association of Computing Machinery (ACM), Association of Minority Engineers and Computer Scientists (AMECS), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), Society of Automotive Engineers (SAE), Society of Women Engineers (SWE), National Society of Professional Engineers (NSPE), American Institute of Aeronautics and Astronautics (AIAA), 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. For more details refer to the undergraduate student handbook of the school.

Graduate programs

The School of Engineering and Computer Science offers programs leading to the Master of Science degree in electrical and computer engineering, mechanical engineering, systems engineering, computer science and engineering, and the Doctor of Philosophy degree in systems engineering which involves a blending of various disciplines.

For more information, see the *Oakland University Graduate Catalog.*

Center for Robotics and Advanced Automation

The School of Engineering and Computer Science has a Center for Robotics and Advanced Automation. Founded in 1981, it has since become a center of research excellence. The main goals of the center are to contribute to the demand for high technology and industrial productivity in the United States and to create a partnership among industries, government and academic communities to solve problems of common interest, particularly in intelligent robotics, intelligent machine vision and automated manufacturing.

Admission

High school preparation

Entering freshmen planning to major in engineering or computer science should have taken at least four years of high school mathematics, including trigonometry. A solid background in English composition is essential for all majors. Additional preparation should include course work in chemistry and physics. Drafting, machine shop practice, computer programming, and electronics shop courses are useful, but are not required for admission. Normally, a 3.00 (B average) is required for admission to programs in the School of Engineering and Computer Science.

Transfer policy

The programs offered by the School of Engineering and Computer Science 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 background into advanced analysis and design work.

To ensure the integrity of its programs, the School of Engineering and Computer Science 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. Once matriculated at Oakland, students are expected to complete all remaining course work for the degree at Oakland University. Students who plan to take courses at other universities must have prior written consent of the chair of their major. Students who have completed 62 semester hours of credit from any accredited institution, including Oakland University, may not transfer additional credits or course equivalents from community or junior colleges.

Students planning to transfer into one of the engineering programs should present the following: four semester courses in analytic geometry and calculus, including linear algebra and differential equations; two semester courses in introductory college physics using calculus; 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.

Community college students who plan to transfer into an engineering program are advised to follow the transfer program prescribed by the Michigan Engineering College/Community College Liaison Committee. Brochures describing the program are available from community colleges or the School of Engineering and Computer Science. Community college students who satisfy the MACRAO agreement generally need only 8 additional credits to satisfy Oakland University's general education requirements.

Students planning to transfer into the computer science program should complete one year of course work in calculus, one course in linear algebra, one course in discrete mathematics if possible and two semester courses in introductory college physics using calculus. A course in programming in a high-level language, such as PASCAL or PL/1, and a course in assembly programming are desirable. Whenever possible, further course work in computer science should be planned with an Oakland University adviser to ensure compatibility with university requirements.

See *Transfer student information* for additional information.

Internal transfer

Oakland University students wishing to transfer into programs in the School of Engineering and Computer Science from other majors or from undecided status will be considered upon the completion of the following courses: MTH 154, MTH 155, PHY 151 and PHY 152. A strong performance in all of the courses taken at Oakland University, and especially in the above listed four courses in calculus and physics, are required for internal transfer.

Academic Advising and Plans of Study

The programs of study for all entering freshmen are focused toward acquiring math, science, writing and programming skills and thus follow a more or less uniform pattern. One of the early courses taken by engineering students is EGR 101, "Introduction to Engineering." This course is taught by faculty from all the departments of the school, thereby providing a perspective of their specialty areas, and increasing professional awareness of the students. Students are encouraged to meet with the faculty and seek further clarification or professional advice.

Upon acquiring major standing (see below), students are assigned to a faculty adviser. It is mandatory for the students to consult their faculty advisers to plan a meaningful program of professional study in their major immediately after major standing has been granted.

In order to further facilitate the student-faculty interaction, one week of each term is designated as "Advising Week." During the fall term, this is normally the week before early registration. During the winter term this is normally the week beginning on the first Monday of April. Failure to meet with his/her adviser, at least once during each fall and winter semester, will result in cancellation of the student's registration for the succeeding semester.

In consultation with the faculty advisers, engineering students should ensure that they acquire at least 16 credits of design while satisfying their overall program requirements. Design credits can be acquired through the study of various subjects. For each program, relevant design courses and credits are listed in the school's "Undergraduate Student Handbook" available from the Advising Office in 159A Dodge Hall.

The school's academic advising office oversees specific program requirements. Students who have questions about transfer credit, academic standing, major standing, petitions or the details of degree requirements should consult the academic adviser in 159A Dodge Hall. Students of the School of Engineering and Computer Science must complete a Plan of Study form, which is a timetable of courses to be taken for undergraduate credit. They should complete the form as early as possible, but no later than the end of the semester in which they complete 48 credits. Transfer students should submit the form when they enter Oakland University, regardless of the number of credits they have already earned.

Students are responsible for updating their plans regularly, preferably each semester. Although advisers are obligated to help students plan their programs, the responsibility for fulfilling degree requirements remains with students.

Degree Requirements

General requirements for the baccalaureate degrees

The following general requirements must be met by students seeking a bachelor's degree in computer engineering, electrical engineering, mechanical engineering, systems engineering, engineering chemistry, engineering physics or computer science.

Students must:

1. Complete at least 128 credits for all programs. At least 32 credits must be in courses at the 300 level or above.
2. Complete at least 32 credits at Oakland University. (Refer to the transfer policy of the School of Engineering and Computer Science for further clarification.) The credits taken at Oakland must include the following for students majoring in:
   a. computer, electrical, mechanical or systems engineering, at least 24 credits in engineering core or professional subjects required for the major, of which 16 must be design credits;
   b. engineering chemistry and engineering physics, at least 16 credits in required engineering courses, and 16 credits in chemistry or physics courses required for the major;
   c. computer science, at least 20 credits in computer science courses required for the major.
3. Take the last 8 credits needed to complete baccalaureate requirements at Oakland University.

4. Demonstrate writing proficiency by meeting the university standard in English composition (see *Undergraduate degree requirements*).
5. Fulfill the university general education requirement (see below and *Undergraduate degree requirements*.)
6. Be admitted to major standing in the major of the student's choice.
7. Complete the requirements specified for the elected major.
8. Earn a cumulative grade point average of at least 2.00 in courses taken at Oakland University.
9. Complete an Application for Degree card at the Office of the Registrar and pay the graduation service fee.

General education

All Oakland University students must take a series of courses distributed across eight field groups for broad exposure to a liberal arts education. Engineering and computer science students automatically satisfy two of these groups (natural science and technology; mathematics, logic and computer science) by virtue of required courses. In addition to satisfying the remaining six groups, engineering and computer science students must arrange to acquire depth in a particular area of general education study. The requirements may be satisfied by selecting one of the course sequences listed below and choosing the remaining courses to span the field groups not represented.

Theatre and dramatic expression: THA 201 and ENG 306 (arts and literature)

American history and literature: HST 114 and ENG 224 (western civilization and literature)

Classical philosophy and mythology: PHL 204 and ENG 312 (western civilization and literature)

Russian civilization and its Communist transformation: IS 260 and PS 377 (international studies and western civilization)

Chinese civilization and its Communist transformation: IS 210 and PS 377 (international studies and western civilization)

Macro-economics in the context of American history: HST 115 and ECN 200 (or 210), (western civilization and social science)

Comparative politics: PS 131 and PS 377 (western civilization and social science)

Culture, science and technology: AN 102 or AN 300 and HST 210 (social science and western civilization)

Self and society in American history: HST 114 or 115 and SOC 206 (western civilization and social science)

Asian literature and civilization: LIT 100 and IS 210 (or 220 or 240), (literature and international studies)

Language and civilization: SPN 114, RUS 114, CHE 114, JPN 114 or HIU 114 and the corresponding IS course (250, 260, 210, 220 or 240), (language and international studies)

Suggested sequence for the freshman year

Following is an example of a suggested sequence of courses for freshmen entering the School of Engineering and Computer Science with the necessary preparation in mathematics.

Engineering majors — First semester: EGR 101, MTH 154, CHM 144 or CHM 164, CSE 132, Rhetoric or general education course. Second semester: CSE 171, MTH 155, PHY 151, general education course.

Computer science majors — First semester: CSE 132, MTH 154, Rhetoric or general education course. Second semester: CSE 262, MTH 155, PHY 151, general education course. Computer science majors are encouraged to take the 1-credit course EGR 101 as a free elective.

Scheduling for subsequent years depends on students' selected majors or minors, but should be tailored to meet the requirements for admission to major standing promptly. For sample schedules, refer to the department listings in this catalog or to the student handbook of the School of Engineering and Computer Science.

Students who are not prepared to enter the mathematics and science courses without additional preparation in these subject areas must modify their schedules accordingly. Such students may require additional time to complete degree requirements, unless they correct the deficiencies by enrolling during the spring and summer sessions following the freshman year.

Admission to major standing

To enroll in 300- or 400-level courses and to become candidates for the baccalaureate degree, students of the School of Engineering and Computer Science 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 admission.

Students lacking major standing may enroll in 300- or 400-level engineering or computer science courses only by presenting at registration an approval form signed by either the academic adviser or the chair of the major. The purpose of this process is to ensure that students can correct and are working to correct outstanding deficiencies preventing admission to major standing. Forms may be obtained in the academic advising office, 159A Dodge Hall.

Admission to major standing in each of the programs of the School of Engineering and Computer Science requires writing proficiency and satisfactory completion of course work in mathematics, science and the major, as designated below.

Computer science and computer engineering

Mathematics: MTH 154-155, MTH 256, APM 263. Science: PHY 151, PHY 152. Major: EGR 101 (for computer engineering majors only) CSE 132, CSE 171, CSE 262, CSE 280.

Electrical engineering and systems engineering

Mathematics: MTH 154-155, MTH 256, APM 257. Science: CHM 144 or CHM 164, PHY 151, PHY 152. Major: EGR 101, CSE 132, CSE 171, ME 221.

Mechanical engineering

Mathematics: MTH 154-155 and either MTH 254 or both MTH 256 and APM 257. Science: CHM 144 or CHM 164, PHY 151, PHY 152. Major: EGR 101, CSE 132, CSE 171, ME 221.

Engineering physics

Mathematics: MTH 154-155, MTH 254. Science: CHM 144-145 or CHM 164-165, PHY 151, PHY 152, PHY 158. Major: CSE 132, CSE 171, EE 222.

Engineering chemistry

Mathematics: MTH 154-155, MTH 254, APM 257. Science: CHM 144-145 or CHM 164-165, CHM 149. Major: EGR 101, CSE 132, CSE 171, ME 221.

To complete the requirements for major standing satisfactorily a student must a) have an average of at least 2.00 in each of the mathematics, science and major course groupings; b) have no more than two grades below 2.0 in the required courses; c) not have repeated any course more than twice; and d) not have repeated more than three different courses. Courses in which a W (withdrawal) grade is recorded will not be counted.

Transfer students may satisfy the requirements for major standing by using transfer credits.

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 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. Application should be made in the advising office, 159A Dodge Hall.

Cooperative Education

General information

Students in the School of Engineering and Computer Science who want to combine relevant work experience with their college education are encouraged to participate in the university's cooperative education program. Co-op employment provides practical training related to a student's field of study and forms an integral part of the educational program. It enables students to relate their academic studies with practical applications, and it gives them early contact with practitioners in their fields.

Beginning in the junior year, co-op students alternate four-month semesters of full-time study with equal periods of paid, full-time employment in business, industry or government. The program coordinator and the employer work together to ensure that the practical training becomes progressively more challenging and carries increasing responsibility as students advance through the curriculum.

Requirements of the cooperative education program

Students interested in the cooperative education program in engineering or computer science should apply through the Office of the Cooperative Education Coordinator, 275 Vandenberg Hall (370-3252).

To be admitted, a student must:

1. Be granted major standing in engineering or computer science (see above), or file an approved plan for achieving major standing, signed by the chair of the major. In addition, engineering students must have completed the mathematics sequence appropriate to their major.
2. Normally, have a cumulative grade point average of at least 2.80.
3. Have the approval of the School of Engineering and Computer Science, the cooperative education coordinator for the school and the employer.

Transfer students must have completed at least one semester of full-time study at Oakland University before acceptance into the program.

To remain in good standing in the cooperative education program, students must:

1. Complete alternate semesters of full-time study and full-time work.
2. Complete at least 12 credits of work appropriate to their elected major during each semester of study, maintaining a cumulative grade point average of at least 2.80.
3. Complete EGR 391 during the semester following each co-op assignment.
4. Submit a satisfactory training report (as part of the requirements for EGR 391) within four weeks of the beginning of the semester following each co-op assignment.
5. Receive a satisfactory employer evaluation for each assignment.

The grade assigned in EGR 391 will give added weight to the employer's evaluation, the student's written training report, a progress interview with the coordinator and the student's participation in regularly scheduled classes.

Students who do not meet the conditions for good standing will be subject to dismissal from the co-op program.

The co-op program is administered by the Department of Placement and Career Services.

Double major

To earn two majors in engineering or in engineering and computer science, students must complete all 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 technical courses applicable to the second major.

Students seeking two degrees should consult the university's requirements (see *Additional undergraduate degrees and majors*).

Policies on Electives

Approved science electives

Approved science electives for majors in computer science and in computer, electrical, mechanical and systems engineering are: biology courses numbered 190 and higher; CHM 145, CHM 165 (CHM 144 for computer science majors) and chemistry courses numbered 225 and higher, except CHM 497; physics courses numbered 317 and higher, except PHY 341; and ENV 308 and ENV 373. Special topics and independent study courses require prior approval.

Whereas any one of the above courses may be taken to satisfy the science elective, some subjects have a greater relevance and usefulness than others to a specific major. Such subjects have been identified for each major, under departmental listings, later on in this catalog. It is highly recommended that students take one of the recommended science elective courses listed under the departmental requirements.

Free electives ineligible for credit toward the degree

Students entering the School of Engineering and Computer Science are expected to have adequate preparation for the required introductory courses in mathematics, physics and chemistry. Courses in these areas that are more elementary than MTH 154, PHY 151 and CHM 144 may not be presented for credit toward a degree in engineering and computer science. Specifically, the following courses and their equivalents are not recognized for credit toward the degree: MTH 011, MTH 012, MTH 100, MTH 121-122, MTH 141, MTH 185, PHY 101, PHY 102, CHM 104, CHM 110 and CHM 140.

New courses in mathematics, physics or chemistry that may be introduced in the future will be added to the list if the content warrants. A current list of disallowed courses is maintained in the office of the academic adviser, 159A Dodge Hall, and is available for inspection.

Concentrations and minors

Students who wish to add an established minor or concentration or otherwise participate in an interdepartmental program must apply for admission and assistance in planning a program. Application may be made to the coordinator of the appropriate program committee or department involved.

Described below are the requirements for minors and concentrations that have been approved for engineering and computer science majors. Students planning medical, dental or optometry careers are advised to take the concentration in preprofessional studies in medicine, dentistry and optometry (see *Concentrations* in the Arts and Sciences portion of the catalog).

Accounting

Coordinator: *David D. Sidaway*

For computer science majors, a minimum of 20 credits. To obtain a minor in accounting, a student must complete the following courses with a grade of at least 2.0 in each course: ACC 200, ACC 210 and 12 additional credits in accounting (ACC) courses for which the student has the prerequisites.

Applied mathematics

Coordinator: *Jerrold W. Grossman*

For engineering and computer science majors, a minimum of 22 credits. To obtain a minor in applied mathematics, a student must complete the following courses with a grade of 2.0 or better in each: MTH 254, MTH 256, MTH 351, STA 226 or another approved statistics course, and two courses chosen from APM 257, APM 263 and courses labeled MTH, APM, STA or MOR with a number of 300 or higher (with the exception of MTH 414 and MTH 497). Students should consult an adviser in the Department of Mathematical Sciences when planning their programs.

Applied statistics
Coordinator: *Harvey Arnold*

For engineering and computer science majors, a minimum of 16 credits. To obtain a concentration in applied statistics, a student must complete at least 16 credits in statistics with an average grade of at least 2.0. Courses must include STA 226 or another approved introductory course, STA 322, STA 323 and STA 324. Students should consult an adviser in the Department of Mathematical Sciences when planning their programs.

Biology
Coordinator: *Nalin J. Unakar*

For computer science majors, a minimum of 20 credits. To obtain a liberal arts minor in biology, a student must take a minimum of 20 credits in biology, including BIO 190, BIO 195 and BIO 200. At least 8 credits must be in courses numbered 301 or higher. A minimum of 8 credits must be taken at Oakland University.

Chemistry
Coordinator: *Paul Tomboulian*

For computer science majors, a minimum of 26 credits. To obtain a liberal arts minor in chemistry, a student must take CHM 144-145 (or CHM 164-165), CHM 149, CHM 225, CHM 203-204 or CHM 234-235 and CHM 342. This minor is also available for engineering majors, requiring a minimum of 24 credits. Engineering majors must complete the following courses with an average grade of 2.0 or better: CHM 144-145 (or CHM 164-165), CHM 149, CHM 203 or CHM 225, CHM 342, CHM 470 and CHM 471. A minimum of 8 credits must be taken at Oakland University.

Economics
Coordinator: *Ronald L. Tracy*

For engineering and computer science majors, a minimum of 18-20 credits. To obtain a minor in economics (offered by the School of Business Administration), a student must complete the following courses with a grade of at least 2.0 in each course: ECN 150 or ECN 210 or ECN 200-201, and 12-16 additional credits in economics (ECN) courses for which the student has the prerequisites. Students who have taken ECN 150 need 16 additional credits to earn a minor.

Environmental studies
Coordinator: *Paul Tomboulian*

For engineering majors, a minimum of 24 credits. To obtain a concentration in environmental studies, a student must complete the following courses: a) CHM 203, ENV 308 and EGR 407; b) 8 credits of electives chosen from ENV 372, ENV 373, and BIO 301; and c) 4 credits of EGR 490 or EGR 494 on an approved environmental engineering topic.

Finance
Coordinator: *Robert T. Kleiman*

For computer science majors, a minimum of 22 credits. To obtain a minor in finance, a student must complete the following courses and any prerequisites required: ACC 200, QMM 250, FIN 322 and 8 additional credits in finance (FIN) courses. A grade of at least 2.0 in each course is required.

General business
Coordinator: *Floyd Willoughby*

For engineering and computer science majors, a minimum of 19-23 credits. To obtain a minor in general business, a student must complete the following courses with a grade of at least 2.0 in each course: ECN 210 or both ECN 200 (or ECN 150) and ECN 201, ACC 200, ORG 330, and 6-8 additional credits chosen from 300- or 400-level courses in ACC, FIN, MGT, MIS, MKT, ORG, POM or QMM for which the student has met the prerequisites.

Linguistics
Coordinator: *Peter J. Binkert*

For computer science majors, a minimum of 20 credits. To obtain a liberal arts minor in linguistics, a student must complete the following courses with an average grade of at least 2.0: ALS 176 or LIN 207, LIN 301, and at least 12 linguistics (LIN) credits at the 300 or 400 levels, 4 of which must be at the 400 level.

Physics
Coordinator: *Norman Tepley*

For computer science majors, a minimum of 20 credits. To obtain a liberal arts minor in physics, a student must complete the following courses with an average grade of at least 2.0: PHY 151-152, PHY 158, and at least 8 credits in physics courses numbered 300 or higher.

Quantitative methods
Coordinator: *David P. Doane*

For computer science majors, a minimum of 19 credits. To obtain a minor in quantitative methods, a student must complete the following courses with a grade of at least 2.0 in each course: CSE 130 or CSE 132, QMM 250 or STA 226; three courses chosen from MIS 444, POM 448, QMM 440, QMM 452, ECN 405, STA 323 and STA 324.

Prerequisites

In planning their schedules, students should ensure that they satisfy prerequisite and corequisite conditions for courses. Students will have their registrations cancelled if they register for courses for which they do not meet the conditions. Students will be liable for any financial penalties incurred by such cancellation.

Independent study and project courses

Independent study and project courses numbered 490 and 494 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 course work.

To register for an independent study or project course, students must first submit a plan of work to the faculty member who will supervise the course. The plan must be approved by the faculty member and the chair of the major before students may register for the course.

Application forms are available in the advising office, 159A Dodge Hall.

Petitions

Waivers of specific academic requirements may be initiated by submitting a petition of exception (see *Petition of exception*).

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 or to the associate dean for administration. 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 in any course offered by the school, as determined by the university Academic Conduct Committee, may be subject to penalties ranging from a reduced grade for the assignment, to a grade of 0.0 for the entire course, to academic probation, to 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 2.00 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 2.00 in one or more of the three categories will be placed on provisional status.

While on provisional status, students must have their programs of study approved by the chair of their major. Students who fail to remove provisional conditions after one semester are generally ineligible to continue their programs. However, provisional 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 course work will be considered equivalent to one semester.)

Students on provisional 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.

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 committee on academic standing. Petitions may be submitted to the associate dean for administration or the academic adviser.

Unsatisfactory performance

Unsatisfactory (U) grades and grades less than 2.0 are considered substandard. A student within the School of Engineering and Computer Science who repeats a course in which a grade below 2.0 has been earned must repeat that course at Oakland University. Courses in which a grade below 2.0 has been earned may not be subsequently passed by competency examination or independent study.

See *Repeating courses* for additional information.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

168 DODGE HALL (313) 370-2200

Acting chairperson: *Subramaniam Ganesan*

Professors: *David E. Boddy, Richard E. Haskell, Glenn A. Jackson, Janusz W. Laski, Thomas G. Windeknecht*

Associate professors: *Subramaniam Ganesan, Fatma Mili, Ronald J. Srodawa, Sarma R. Vishnubhotla, Christian C. Wagner*

Assistant professor: *Frank A. Cioch*

Special instructor: *Jerry E. Marsh*

Adjunct professor: *Michael Marcotty*

Adjunct associate professor: *Osman D. Altan*

Major in Computer Engineering

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. 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.

To earn the degree of Bachelor of Science in Engineering with a major in computer engineering, students must complete a minimum of 128 credits. They must demonstrate proficiency in writing (see *Undergraduate degree requirements*) and meet the following requirements:

		Credits
General education (excluding mathematics and science)		24
Mathematics and science		
MTH 154-155	Calculus	8
MTH 256	Introduction to Linear Algebra	3
APM 257	Introduction to Differential Equations	3
APM 263	Discrete Mathematics	4
CHM 144	General Chemistry (or CHM 164)	4
PHY 151-152	Introductory Physics	8
Approved science elective*		4
		34
Computer science and engineering core		
CSE 132	Introduction to Computer Science	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
CSE 262	Data Structures	4
CSE 280	Computer Organization and Assembly Language Programming	4
		16

Engineering core		
EGR 101	Introduction to Engineering	1
EGR 401	Professional Engineering	1
EE 222	Introduction to Electrical Circuits	4
EE 384	Electronic Materials and Devices	4
ME 221	Statics and Dynamics	4
ME 241	Thermodynamics	4
SYS 317	Engineering Probability and Statistics	3
SYS 325	Lumped Parameter Linear Systems	3
		24
Professional subjects		
Required		
EE 326	Electronic Circuit Design	4
CSE 388	Computer Hardware Design	4
CSE 464	Computer Organization and Architecture	4
Senior design course		4
CSE 470	Microprocessor-based System Design	
or		
EGR 490	Senior Project**	
		16
Electives — 8 credits chosen from:		
CSE 343	Foundations of Computer Science (4)	
Any 400-level CSE course (4-8)		
EE 426	Advanced Electronics (4)	
EE 428	Industrial Electronics (4)	
EE 437	Introduction to Communication Electronics (4)	
SYS 422	Robotic Systems (4)	
SYS 431	Automatic Control Systems (4)	
SYS 463	Foundations of Computer-Aided Design (4)	
SYS 469	Simulation in Engineering (4)	
ECN 414	Engineering Economics (2)	
EGR 490***	Senior Project (2-4)	
EGR 494***	Independent Study (2-4)	
		8
Free electives (may be used to satisfy writing proficiency)		6
For limitations on free electives see *Policies on electives.*		
	Total	128

**Approved science electives are given in Policies on electives. Those most highly recommended for computer engineering students are CHM 145 and 165, and any PHY course numbered 325 or higher (except PHY 341).*

***Needs approval for its design content by the chairperson of the Department of Computer Science and Engineering.*

****Needs prior permission of the chairperson of the Department of Computer Science and Engineering.*

Design requirements

All computer engineering students must complete a total of at least 16 credit hours of design while satisfying their overall program requirements. In meeting this requirement, they must seek their faculty adviser's approval. Also, consult the SECS "Undergraduate Student Handbook" for a listing of the number of design credit hours contained in each course.

Economics requirement

In addition to the requirements stated above, computer engineering students must fulfill the economics requirement. This may be met by completion of ECN 414 as a professional elective or by completion of ECN 150, ECN 200 or ECN 210 as a part of the general education requirement.

Performance requirements

In addition to the previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.00 within each group: namely, mathematics and science, core subjects and professional subjects. Within professional subjects, at most two grades below 2.0 are permitted; at most two different courses may be repeated, and a total of three repeat attempts is 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: EGR 101, MTH 154, CHM 144 (or CHM 164), CSE 132, rhetoric or general education, 17 credits; winter semester: MTH 155, PHY 151, CSE 171, general education, 1-credit free elective, 17 credits.

Sophomore year — fall semester: MTH 256, PHY 152, CSE 262, general education, 1-credit free elective, 16 credits; winter semester: APM 263, EE 222, CSE 280, general education, 16 credits.

Junior year — fall semester: APM 257, ME 221, SYS 317, EE 326, general education, 18 credits; winter semester: ME 241, CSE 388, SYS 325, general education, 15 credits.

Senior year — fall semester: EE 384, CSE 470 or EGR 490, professional elective, science elective, EGR 401, 17 credits; winter semester: CSE 464, professional elective, 4-credit free elective, 12 credits.

Major in Computer Science

The program in computer science leading to a Bachelor of Science degree prepares students for professional practice in systems programming, software design and computer applications, or for graduate study in computer science. The program provides a solid foundation based on the organization, processing and display of information. Through choice of minor, students may broaden their areas of expertise to include such diverse subjects as applied mathematics, business applications, management science or other areas that utilize computers in everyday operations.

To earn the Bachelor of Science degree with a major in computer science, students must complete a minimum of 128 credits, demonstrate writing proficiency (see *Undergraduate degree requirements*) and meet the following requirements:

		Credits
General education (excluding mathematics and science)		24
Mathematics and science		
MTH 154-155	Calculus	8
MTH 256	Introduction to Linear Algebra	3
APM 263	Discrete Mathematics	4
STA 226	Applied Statistics (or approved substitute)	4
PHY 151-152	Introductory Physics	8
PHY 158	General Physics Laboratory	2
Approved science elective*		4
		33
Computer science and engineering core		
CSE 132	Introduction to Computer Science	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
CSE 262	Data Structures	4
CSE 280	Computer Organization and Assembly Language Programming	4
		16
Professional subjects		
Required		
Two programming language laboratories (see Course offerings) with one from Group A and one from Group B		2
CSE 335	Programming Languages	4
CSE 343	Foundations of Computer Science	4
CSE 402	Social Implications of Computing	1
CSE 450	Operating Systems	4
		15

Electives — 12 credits chosen from:		
At least one of the following software design oriented courses: CSE 413, CSE 415, CSE 416, CSE 438, CSE 439, CSE 440, CSE 445, CSE 447, CSE 455, CSE 465 (4-12)		
Any 300- or 400-level CSE course (4-8)		
SYS 463	Foundations of Computer-Aided Design (4)	
SYS 469	Simulation in Engineering (4)	
EGR 490**	Senior Project (2-4)	
EGR 494**	Independent Study (2-4)	
		12
Approved minor		20
Free electives (may be used to satisfy writing proficiency)		8
For limitations on free electives see *Policies on electives.*		
	Total	128

**Approved science electives are given in Policies on electives. Those most highly recommended for computer science students are CHM 144 and 164, and any PHY course numbered 325 or higher.*

***Needs prior approval of the chairperson of the Department of Computer Science and Engineering.*

Performance requirements

In addition to previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.00 within each group: namely, mathematics and science, core subjects, professional subjects and approved minor. Within professional subjects, at most two grades below 2.0 are permitted, at most two different courses may be repeated and a total of three repeat attempts is permitted.

Approved minors

Computer science students must complete an approved minor with an average grade point of at least 2.00. Approved minors are: accounting, applied mathematics, applied statistics, biology, chemistry, economics, finance, general business, linguistics, physics and quantitative methods (see *Concentrations and minors*, above).

Other minors or alternate programs may be approved by petition. Students must apply to the coordinator of the program for assistance in planning their minors and to obtain certification. Courses used to satisfy minor requirements may also be used to meet other program requirements.

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: MTH 154, CSE 132, general education, English composition or general education, 1-credit free elective, 17 credits; winter semester: MTH 155, PHY 151, CSE 262, general education, 16 credits.

Sophomore year — fall semester: MTH 256, PHY 152, PHY 158, CSE 171, programming lab, 14 credits; winter semester: APM 263, CSE 280, course in minor, general education, programming lab, 17 credits.

Junior year — fall semester: STA 226, CSE 335, course in minor, general education, 16 credits; winter semester: CSE 343, course in minor, general education, free elective, 16 credits.

Senior year — fall semester: CSE 402, CSE 450, professional elective, course in minor, science elective, 17 credits; winter semester: two professional electives, course in minor, free elective, 15 credits.

Minor in computer science for nonengineering majors

The School of Engineering and Computer Science offers a minor in computer science to students with majors other than engineering or computer science.

Students must earn 20 credits in computer science (CSE) courses, including: a minimum of 8 credits taken from CSE 335, CSE 340, CSE 343, CSE 345 or any 400-level CSE course approved by an adviser; a maximum of 8 credits from CSE 125, and either CSE 130 or CSE 132; a maximum of 8 credits from CSE 220, CSE 248, CSE 280 and CSE 262; and a maximum of 4 credits in "Programming Language Labs." A grade point average of at least 2.00 is required in courses counted toward a minor.

Students seeking a minor must obtain permission from the Department of Computer Science and Engineering in order to register for CSE courses at the 300 and 400 levels.

DEPARTMENT OF ELECTRICAL AND SYSTEMS ENGINEERING

133 DODGE HALL (313) 370-2177

Chairperson: *Naim A. Kheir*

Professor emeritus: *David H. Evans*

John F. Dodge Professor: *Nan K. Loh*

Professors: *Naim A. Kheir, Keith R. Kleckner, Andrzej Rusek, Tung H. Weng, Howard R. Witt*

Associate professors: *Hoda S. Abdel-Aty-Zohdy, Ka C. Cheok, Manohar Das, Robert P. Judd, Robert P. Van Til, Mohamed A. Zohdy*

Assistant professor: *You L. Gu*

Visiting assistant professor: *Seyoung Kim*

Adjunct professors: *Ronald R. Beck, Donald R. Falkenburg*

Major in Electrical Engineering

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, electronics including VLSI systems, electromagnetics, electronic devices, communications, controls 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.

Electrical 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.

To earn the degree of Bachelor of Science in engineering with a major in electrical engineering, students must complete a minimum of 128 credits, demonstrate writing proficiency (see *Undergraduate degree requirements*) and meet the following requirements:

		Credits
General Education (excluding mathematics and science)		24
Mathematics and science		
MTH 154-155	Calculus	8
MTH 254	Multivariable Calculus	4
MTH 256	Introduction to Linear Algebra	3
APM 257	Introduction to Differential Equations	3
CHM 144	General Chemistry (or CHM 164)	4
PHY 151-152	Introductory Physics	8
Approved science elective*		4
		34
Engineering core		
EGR 101	Introduction to Engineering	1
EGR 401	Professional Engineering	1
CSE 132	Introduction to Computer Science	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
EE 222	Introduction to Electrical Circuits	4
EE 384	Electronic Materials and Devices	4

ME 221	Statics and Dynamics	4
ME 241	Thermodynamics	4
SYS 317	Engineering Probability and Statistics	3
SYS 325	Lumped Parameter Linear Systems	3
		32

Professional subjects

Required

EE 326	Electronic Circuit Design	4
EE 345	Electric and Magnetic Fields	4
EE 351	Electromechanical Energy Conversion	4
EE 378	Design of Digital Systems	4
EE 437	Introduction to Communication Electronics	4
SYS 431	Automatic Control Systems	4
		24

Electives — 8 credits chosen from:

At least one of the following design courses: EE 426, EE 470, EE 472, SYS 433, SYS 458 (4-8)

Any 400 level course with an EE, CSE or SYS designation (4)

EGR 490**	Senior Project (2-4)	
EGR 494**	Independent Study (2-4)	
ME 454	Solar and Alternate Energy Systems (4)	
PHY 472	Quantum Mechanics I (4)	
ECN 414	Engineering Economics (2)	
		8

Free electives (may be used to satisfy writing proficiency) 6

For limitations on free electives, see *Policies on electives.*

Total 128

**Approved science electives are given in Policies in electives. Those most highly recommended for electrical engineering students are PHY 331, 361 and 371.*

***Needs prior approval of the chairperson of the Department of Electrical and Systems Engineering.*

Depth areas

Electrical engineering students desiring depth in a particular area should consider the following professional elective packages: Electronics — EE 426 and either EE 485 or EE 487; Control systems — SYS 422, SYS 433; Computers — EE 470, EE 472; Power systems — SYS 458, ME 454.

Design requirements

All electrical engineering students must complete a total of at least 16 credit hours of design while satisfying their overall program requirements. In meeting this requirement, they must seek their faculty adviser's approval. Also, consult the SECS "Undergraduate Student Handbook" for a listing of the number of design credit hours contained in each course.

Economics requirement

In addition to the requirements stated above, electrical engineering students must fulfill the economics requirement. This may be met by completion of ECN 414 as a professional elective or by completion of ECN 150, 200 or 210 as a part of the general education requirement.

Performance requirements

In addition to previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.00 within each required group: namely, mathematics and science, core subjects, and professional subjects. Within professional subjects, at most two grades below 2.0 are permitted, at most two different courses may be repeated and a total of three repeat attempts is permitted.

Major in Systems Engineering

Systems engineering is a broad discipline with roots in a diverse spectrum of engineering fields. The coordination of engineering tasks and the assembly of a complex array of subsystems, such as in the Apollo and Space Shuttle programs, are typical of the systems approach to problem solving and design.

Oakland University's systems engineering program contains two options: dynamic systems and control, and manufacturing.

The dynamic systems and control program prepares students for the field of control engineering. The curriculum combines courses from electrical and mechanical engineering, along with a systems engineering control sequence. It is designed to teach the fundamentals of mechanical systems, control system design techniques, and the practical matter of implementing the controllers in modern electronic hardware.

The manufacturing program emphasizes the important role of the computer in systems design. This curriculum is anchored by a strong computer science component which, along with professional courses, prepares students for careers in simulation, computer-assisted design and systems optimization.

To earn the degree of Bachelor of Science in Engineering with a major in systems engineering, students must complete a minimum of 128 credits, demonstrate writing proficiency (see *Undergraduate degree requirements*) and meet the following requirements:

		Credits
General education (excluding mathematics and science)		24
Mathematics and science		
MTH 154-155	Calculus	8
MTH 256	Introduction to Linear Algebra	3
APM 257	Introduction to Differential Equations	3
APM 263*	Discrete Mathematics (4) or	
MTH 254*	Multivariable Calculus (4)	4
CHM 144	General Chemistry (or CHM 164)	4
PHY 151-152	Introduction to Physics	8
Approved science elective**		4
		34
Engineering core		
EGR 101	Introduction to Engineering	1
EGR 372	Properties of Materials	4
EGR 401	Professional Engineering	1
CSE 132	Introduction to Computer Science	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
EE 222	Introduction to Electrical Circuits	4
ME 221	Statics and Dynamics	4
ME 241	Thermodynamics	4
SYS 317	Engineering Probability and Statistics	3
SYS 325	Lumped Parameter Linear Systems	3
		32
Professional subjects for dynamic systems and control option (32 credits)		
Required		
EE 326	Electronic Circuit Design	4
EE 351	Electromechanical Energy Conversion	4
EE 378	Design of Digital Systems	4
ME 321	Dynamics and Vibrations	4
SYS 431	Automatic Control Systems	4
SYS 433	Modern Control System Design	4
		24
Electives — 8 credits chosen from:		
At least one of the following design courses: SYS 422, SYS 458, EE 426, EE 470, EE 472 (4-8)		
Any 400-level course with EE, CSE, SYS or ME designation (4)		
EGR 490*†	Senior Engineering Project (2-4)	
EGR 494*†	Independent Study (2-4)	
ECN 414	Engineering Economics (2)	
		8
Professional subjects for manufacturing option (32 credits)		
Required		
CSE 262	Data Structures	4

SYS 410	Systems Optimization and Design	4
SYS 463	Foundations of Computer-Aided Design	4
SYS 469	Computer Simulation in Engineering	4
SYS 483	Production Systems	4
SYS 484	Flexible Manufacturing Systems	4
		24

Electives — 8 credits chosen from:

Any 400-level course with the SYS, CSE, EE or ME designation (4-8)

EGR 490*†	Senior Project (2-4)	
EGR 494*†	Independent Study (2-4)	
ECN 414	Engineering Economics (2)	
		8

Free Electives (may be used to satisfy writing proficiency) 6

For limitations on free electives see *Policies on electives.*

Total 128

**MTH 254 is required for dynamic systems and control option and APM 263 is required for manufacturing option.*
***Approved science electives are given in Policies on electives. Those most highly recommended are PHY 331 and 371.*
**†Needs prior permission of the chairperson of the Department of Electrical and Systems Engineering.*

Economics requirement

In addition to the requirements stated above, systems engineering students must fulfill the economics requirement. This may be met by completing ECN 414 as a professional elective or by completing ECN 150, ECN 200 or 210 as part of the general education requirement.

General business

Students enrolled in the manufacturing option 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 in the Business Administration portion of the catalog). The credits from the minor may be used to satisfy the social science general education requirement, the economics requirement, and the free elective requirement.

Design requirements

All systems engineering students must complete a total of at least 16 credit hours of design while satisfying their overall program requirements. In meeting this requirement, they must seek their faculty adviser's approval. Also, consult the SECS "Undergraduate Student Handbook" for a listing of the number of design credit hours contained in each course.

Performance requirements

In addition to previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.00 within each group: namely mathematics and science, core subjects and professional subjects. Within professional subjects, at most two grades below 2.0 are permitted; at most two different courses may be repeated and a total of three repeat attempts is permitted.

Sample electrical engineering and systems engineering schedules

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: EGR 101, MTH 154, CHM 144 (or CHM 164), CSE 132, Rhetoric or general education, 17 credits; winter semester: MTH 155, PHY 151, CSE 171, general education, 1-credit free elective, 17 credits.

Sophomore year — fall semester: MTH 254, PHY 152, ME 221 or ME 241, general education, 16 credits; winter semester: APM 257, EE 222, ME 221 or ME 241, general education, 1-credit free elective, 16 credits.

Junior year — fall semester: MTH 256, SYS 317, EGR 372 (for SYS), EE 326 (for EE), SYS 325, general education, 17 credits; winter semester: two professional subjects, one science elective, one free elective, 16 credits.

Senior year — fall semester: EE 384 and two professional subjects (for EE), three professional subjects (for SYS), EGR 401, general education, 17 credits; winter semester: three professional subjects, 12 credits.

DEPARTMENT OF MECHANICAL ENGINEERING

170 DODGE HALL (313) 370-2210

Chairperson: *Joseph D. Hovanesian*

Professors: *Bhushan L. Bhatt, Robert H. Edgerton, Joseph D. Hovanesian, Yau Y. Hung, Gilbert L. Wedekind*

Associate professors: *Brian P. Sangeorzan, Ren-Jyh Gu*

Assistant professors: *Ching L. Ko, Michael Latcha*

Visiting assistant professor: *Gary C. Barber*

Adjunct professors: *Martin A. Erickson, Grant R. Gerhart*

Major in Mechanical Engineering

The field of mechanical engineering offers a broad spectrum of career opportunities in such areas as design, analysis, test development, research and the manufacturing of numerous products.

Oakland University's undergraduate program in mechanical engineering provides a foundation in the mechanics of solids, thermodynamics, fluid mechanics, transfer and rate mechanisms, materials, design of mechanical systems and electrical and computer theory. A strong laboratory experience is interwoven through the curriculum, providing numerous design experiences. Opportunities are provided to allow students to relate theoretical ideas to practical problems.

The option of selecting several of the senior-level courses allows for greater flexibility in the choice of option areas of specialization within mechanical engineering.

To earn the degree of Bachelor of Science in Engineering with a major in mechanical engineering, students must complete a minimum of 128 credits, demonstrate writing proficiency (see *Undergraduate degree requirements*) and meet the following requirements:

		Credits
General Education (excluding mathematics and science)		24
Mathematics and science		
MTH 154-155	Calculus	8
MTH 254	Multivariable Calculus	4
MTH 256	Introduction to Linear Algebra	3
APM 257	Introduction to Differential Equations	3
CHM 144	General Chemistry (or CHM 164)	4
PHY 151-152	Introductory Physics	8
Approved science elective*		4
		34
Engineering core		
EGR 101	Introduction to Engineering	1
EGR 372	Properties of Materials	4
EGR 401	Professional Engineering	1
CSE 132	Introduction to Computer Science	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
EE 222	Introduction to Electrical Circuits	4
ME 221	Statics and Dynamics	4
ME 241	Thermodynamics	4
SYS 317	Engineering Probability and Statistics	3
SYS 325	Lumped Parameter Linear Systems	3
		32

Professional subjects

Required

ME 321	Dynamics and Vibrations	3
ME 331	Introduction to Fluid and Thermal Energy Transport	4
ME 361	Mechanics of Materials	4
		11

Professional design requirements

Choose one course from Group A and one from Group B:

Group A

ME 486	Machine Design (4)
ME 487	Mechanical Engineering CAD/CAM Systems (4)

Group B

ME 454	Solar and Alternate Energy Systems (4)
ME 482	Fluid and Thermal Energy Systems (4)

8

Choose one of the following:

(i) Senior Mechanical Engineering Design Project, ME 492 (3); and one professional subject or elective which contains at least 1 credit of design (see "Design Requirements").

(ii) Professional subjects or electives which contain a total of at least 4 design credits (see "Design Requirements").

The courses selected in (i) or (ii) above should belong to, and be counted toward, one of the professional options listed below.

Professional options

1. General mechanical engineering option (15 credits)

Professional electives (chosen from the following if not taken to satisfy Group A and B design requirements)

ME 438	Fluid Transport (4)
ME 448	Thermal Energy Transport (4)
ME 449	Numerical Techniques in Heat Transfer and Fluid Flow (4)
ME 454	Solar and Alternate Energy Systems (4)
ME 456	Energy Systems Analysis (4)
ME 461	Analysis and Design of Mechanical Structures (4)
ME 472	Material Properties and Processes (4)
ME 482	Fluid and Thermal Energy Systems (4)
ME 486	Machine Design (4)
ME 487	Mechanical Engineering CAD/CAM Systems (4)
ME 492	Senior Mechanical Engineering Design Project (3)
EGR 490**	Senior Project (2-4)
ECN 414	Engineering Economics (2)

Not more than 4 credits from:

EGR 407	Environmental Engineering (4)
EGR 494**	Independent Study (2-4)
SYS 431	Automatic Control Systems (4)
SYS 469	Simulation in Engineering (4)
SYS 483	Production Systems (4)
CSE 417	Applied Numerical Methods: Approximations (4)
CSE 418	Applied Numerical Methods: Matrix Methods (4)

15

2. Fluid and thermal systems option (15 credits)

Required subjects

ME 438	Fluid Transport (4)
ME 448	Thermal Energy Transport (4)
ME 482	Fluid and Thermal Energy Systems (4)

Professional electives (chosen from the following if not taken to satisfy Group A and B design requirements)

ME 449	Numerical Techniques in Heat Transfer and Fluid Flow (4)

ME 454	Solar and Alternate Energy Systems (4)	
ME 456	Energy Systems Analysis (4)	
ME 492	Senior Mechanical Engineering Design Project (3)	
EGR 490**	Senior Project (2-4)	
ECN 414	Engineering Economics (2)	
No more than 4 credits from:		
EGR 494**	Independent Study (2-4)	
SYS 431	Automatic Control Systems (4)	
CSE 417	Applied Numerical Methods: Approximations (4)	
CSE 418	Applied Numerical Methods: Matrix Methods (4)	
		15

3. Computer-aided design option (15 credits)

Required subjects

ME 461	Analysis and Design of Mechanical Structures (4)	
ME 487	Mechanical Engineering CAD/CAM Systems (4)	

Professional electives (chosen from the following if not taken to satisfy Group A and B design requirements)

ME 449	Numerical Techniques in Heat Transfer and Fluid Flow (4)	
ME 472	Material Properties and Processes (4)	
ME 486	Machine Design (4)	
ME 492	Senior Mechanical Engineering Design Project (3)	
EGR 490**	Senior Project (2-4)	
EGR 494**	Independent Study (2-4)	
ECN 414	Engineering Economics (2)	
No more than 4 credits from:		
SYS 431	Automatic Control Systems (4)	
SYS 463	Foundations of Computer-Aided Design (4)	
CSE 417	Applied Numerical Methods: Approximations (4)	
CSE 418	Applied Numerical Methods: Matrix Methods (4)	
		15

4. Production and manufacturing processes option (15 credits)

Required subjects

ME 472	Material Properties and Processes (4)	
ME 486	Machine Design (4)	

Professional electives (chosen from the following if not taken to satisfy Group A and B design requirements)

ME 461	Analysis and Design of Mechanical Structures (4)	
ME 482	Fluid and Thermal Energy Systems (4)	
ME 487	Mechanical Engineering CAD/CAM Systems (4)	
ME 492	Senior Mechanical Engineering Design Project (3)	
ME 665	Experimental Stress Analysis (4) (requires instructor approval)	
EGR 490**	Senior Project (2-4)	
EGR 494**	Independent Study (2-4)	
SYS 422	Intelligent Robotics (4)	
SYS 483	Production Systems (4)	
ECN 414	Engineering Economics (2)	
No more than 4 credits from:		
SYS 431	Automatic Control (4)	
CSE 470	Microprocessors and Microcomputers (4)	
		15

Free electives (may be used to satisfy writing proficiency and programming recommendations) 4

For limitations on free electives see *Policies on electives.*

Total 128

**Approved science electives are given in Policies on electives. Those most highly recommended for mechanical engineering students are PHY 331, 351, 366, 371, CHM 145 (or CHM 165), BIO 200 and BIO 205.*

***Needs prior permission of the chairperson of the Department of Mechanical Engineering.*

Design requirements

Design credits must be associated with courses in the professional option, chosen with approval of faculty adviser. All mechanical engineering students must complete a total of at least 16 credit hours of design while satisfying their overall program requirements. Consult the SECS "Undergraduate Student Handbook" for a listing of the number of design credit hours contained in each course.

Economics requirement

In addition to the requirements stated above, mechanical engineering students must fulfill the economics requirement. This may be met by completion of ECN 414 as a professional elective or by completion of ECN 150, ECN 200 or ECN 210 as part of the general education requirement.

Programming recommendations

In addition to the required computer courses, it is recommended that students have some experience in Fortran language, such as CSE 232, and word processing, spread sheets and simple graphics such as CSE 201.

Performance requirements

In addition to previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.00 within each group: namely, mathematics and science, core subjects, and professional subjects. Within professional subjects, at most two grades below 2.0 are permitted; at most two different courses may be repeated and a total of three repeat attempts is 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: EGR 101, MTH 154, CHM 144 (or CHM 164), CSE 132, Rhetoric or general education, 17 credits; winter semester: MTH 155, PHY 151, CSE 171, general education, 16 credits.

Sophomore year — fall semester: MTH 254, PHY 152, ME 221 or ME 241, general education, 16 credits; winter semester: APM 257, EE 222, ME 221 or ME 241, general education, 15 credits.

Junior year — fall semester: MTH 256, ME 321, ME 331, SYS 325, general education, 17 credits; winter semester: EGR 372, ME 361, free or professional elective, science elective, 16 credits.

Senior year — fall semester: SYS 317, EGR 401, two or three (with project) professional subjects, general education, 16 or 19 credits; winter semester: three or four (with project) professional subjects, 12 or 15 credits.

ENGINEERING SCIENCES PROGRAMS

Major in Engineering Chemistry

Coordinators: *Ching L. Ko (engineering), Mark Severson (chemistry)*

The program in engineering chemistry, offered jointly by the School of Engineering and Computer Science and the College of Arts and Sciences, leads to the Bachelor of Science degree. It provides for intensive study in chemistry, along with basic preparation in engineering.

To earn the degree of Bachelor of Science with a major in engineering chemistry, students must complete a minimum of 128 credits, demonstrate writing proficiency (see *Undergraduate degree requirements*) and meet the following requirements:

		Credits
General education (excluding mathematics and science)		24
Mathematics and physics		
MTH 154-155	Calculus	8
MTH 254	Multivariable Calculus	4
APM 257	Introduction to Differential Equations	3
PHY 151-152	Introduction to Physics	8
		23
Chemistry		
CHM 144-145	General Chemistry (or CHM 164-165)	8
CHM 149	Chemistry Laboratory	2
CHM 234-235	Organic Chemistry	8
CHM 237	Separations and Spectroscopy Laboratory	2
CHM 342-343	Physical Chemistry	8
CHM 348	Physical Chemistry Laboratory	2
CHM 471	Macromolecular Chemistry	3
Plus 6 credits from:		
CHM 462-463	Inorganic Chemistry (4)	
CHM 470	Industrial Chemistry (3)	
CHM 472	Macromolecular Chemistry II (3)	
CHM 477	Molecular Laboratory (2)	6
		39
Engineering		
EGR 101	Introduction to Engineering	1
EGR 401	Professional Engineering	1
CSE 132	Introduction to Computer Science	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
EE 222	Introduction to Electrical Circuits	4
ME 221	Statics and Dynamics	4
ME 241	Thermodynamics	4
ME 331	Introduction to Fluid and Thermal Energy Transport	4
SYS 325	Lumped Parameter Linear Systems	3
		29
Plus 8 credits from:		
ME 438	Fluid Transport (4)	
ME 448	Thermal Energy Transport (4)	
ME 449	Numerical Techniques in Heat Transfer and Fluid Flow (4)	
ME 456	Energy Systems Analysis (4)	

ME 482	Fluid and Thermal Energy Systems (4)	
SYS 431	Automatic Control Systems (4)	
		8
Free electives (may be used to satisfy writing proficiency)		5
For limitations on free electives see *Policies on electives.*		
	Total	128

Performance requirements

In addition to the previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.00 in the courses taken to satisfy the engineering, chemistry and mathematics and physics requirements.

Major in Engineering Physics

Coordinators: *Hoda Abdel-Aty-Zohdy (engineering), John M. McKinley (physics)*

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, 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.

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:

		Credits
General education (excluding mathematics and science)		24
Mathematics and sciences		
MTH 154-155	Calculus	8
MTH 254	Multivariable Calculus	4
APM 257	Introduction to Differential Equations	3
CHM 144-145	General Chemistry or (CHM 164-165)	8
PHY 151-152	Introductory Physics	8
PHY 158	Physics Laboratory	2
PHY 317	Modern Physics Laboratory	2
PHY 351	Intermediate Theoretical Physics	4
PHY 361	Mechanics I	4
PHY 371	Modern Physics	4
Another course in physics in addition to any required in options below, chosen from:		
PHY 331	Optics (4)	
PHY 366	Vibrations and Waves (4)	
PHY 381	Electricity and Magnetism I (4)	
PHY 472	Quantum Mechanics I (4)	
		4
		51
Engineering		
CSE 132	Introduction to Computer Science	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
EE 222	Introduction to Electrical Circuits	4
EE 326	Electronic Circuit Design	4
ME 241	Thermodynamics	4
SYS 317	Engineering Probability and Statistics	3
SYS 325	Lumped Parameter Linear Systems	3
		26

Professional option

(The following two options are offered as typical. Students with different interests can construct different options in consultation with the program coordinators.)

Solid state physics and technology option

EE 384	Electronic Materials and Devices	4
PHY 472	Quantum Mechanics I	4
Design elective, chosen from:		4
EE 378	Design of Digital Systems (4)	
EE 426	Advanced Electronics (4)	
EE 437	Introduction to Communication Electronics (4)	
EE 470	Microprocessors and Microcomputers (4)	
EE 487	Integrated Electronics (4)	
SYS 410	Systems Optimization and Design (4)	
		12

Applied mechanics option

PHY 366	Vibrations and Waves	4
ME 361	Mechanics of Materials	4
Design elective, chosen from:		4
ME 454	Solar and Alternate Energy Systems (4)	
ME 461	Analysis and Design of Mechanical Structures (4)	
ME 482	Fluid and Thermal Energy Systems (4)	
ME 486	Machine Design (4)	
ME 487	Mechanical Engineering CAD/CAM Systems (4)	
		12

Technical electives, chosen from:

MTH 256	Introduction to Linear Algebra (3)	
APM 263	Discrete Mathematics (4)	
PHY 318	Nuclear Physics Laboratory (2)	
PHY 331	Optics (4)	
PHY 366	Vibrations and Waves (4)	
PHY 372	Nuclear Physics (4)	
PHY 381	Electricity and Magnetism I (4) or	
EE 345	Electric and Magnetic Fields (4)	
PHY 418	Modern Optics Laboratory (2)	
PHY 472	Quantum Mechanics I (4)	
PHY 482	Electricity and Magnetics II (4)	
EE 351	Electromechanical Energy Conversion (4)	
EE 378	Design of Digital Systems (4)	
EE 384	Electronic Materials and Devices (4)	
ME 331	Introduction to Fluid and Thermal Energy Transport (4)	
ME 361	Mechanics of Materials (4)	
Any 400-level EGR, EE, ME or SYS courses (4-8)		
		7-8
Free electives (can be used to satisfy writing proficiency)		7-8
For limitations on free electives, see *Policies on electives.*		
	Total	128

Performance requirements

In addition to the previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.00 in the engineering and computer science courses and also in the mathematics and science courses taken to meet program requirements.

Course Offerings

Courses offered through the School of Engineering and Computer Science carry the following designations: computer science and engineering courses, CSE; electrical engineering courses, EE; systems engineering courses, SYS; 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 course description. However, this is subject to change.

To register for 300- and 400-level courses, students must have attained major standing.

ENGINEERING

EGR 101 Introduction to Engineering (1)
Introduction to the various disciplines of engineering. The course will be a series of weekly lectures on topics in engineering. Offered fall, winter. (Graded S/U)

EGR 106 Machine Shop Practice (2)
Introduction to basic machining principles and machine shop techniques, uses of lathes, milling machines and other power machines. Emphasis is on practical experience.

EGR 108 Engineering Drawing (2)
Introduction to the use of drafting instruments and procedures. Geometric construction and projection, dimensioning, tolerancing and graphic symbols. Offered fall, winter.

EGR 295 Special Topics (1 to 4)
Study of special topics in engineering and/or computer science. May be taken more than once. Topic must be approved prior to registration.

EGR 372 Properties of Materials (4)
The atomic, molecular and crystalline structure of solids, including a description of x-ray analysis, metallography and other methods of determining structure; correlation of structure with the electric, magnetic and mechanical properties of solids. With laboratory. Offered fall, winter.
Prerequisite: CHM 144 (or CHM 164), PHY 152 and major standing.

EGR 391 Cooperative Engineering and Computer Science (1)
A seminar course for cooperative engineering and computer science students to be taken in the semester following a cooperative training assignment. A report of the training assignment must be submitted within four weeks of the beginning of the course. May be repeated up to three times.
Prerequisite: Consent of the cooperative education coordinator.

EGR 400 Engineering Seminar (1)
Lectures and discussions conducted by faculty, graduate students and speakers from industry and other universities. Emphasis is on current research interests of the school. May be taken twice.

EGR 401 Professional Engineering (1)
Seminars of professional interest to engineers, including such topics as professionalism, ethics, engineering law, engineering economics and technical communications. Graded S/U.
Prerequisite: Senior status in engineering.

EGR 407 Environmental Engineering (4)
A design course that includes consideration of resources and recycling in terms of available energy; economic/thermodynamic combined situations are illustrated through field trips and by guest speakers. A group or individual project is required.
Prerequisite: ME 241.

EGR 490 Senior Project (2 to 4)
Independent work on advanced laboratory projects. Topic must be approved prior to registration. May be taken more than once.

EGR 494 Independent Study (2 to 4)
Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

EGR 495 Special Topics (2 to 4)
Advanced study of special topics in engineering. May be taken more than once.

COMPUTER SCIENCE AND ENGINEERING

CSE 125 Introduction to Computer Use (4)
A first course in computer usage for non-engineering and computer science majors. Introduction to computer hardware, software and business applications. Topics include word processing, spreadsheets, data base management, data communications and graphics software. Programming concepts in data base languages. Problem solving methodology is emphasized. Instruction is divided between lecture and computing laboratory. Offered fall, winter. *Satisfies the university general education requirement in mathematics, logic and computer science.*
Prerequisite: MTH 012 or equivalent.

CSE 130 Introduction to Computer Programming (4)
Introduction to digital computers and algorithmic programming in a language such as PASCAL. Topics covered include data storage and manipulation, control structures and subprogramming. Engineering and computer science majors should enroll in CSE 132. Students cannot receive credit for both CSE 130 and CSE 132. Offered fall, winter. *Satisfies the university general education requirement in mathematics, logic and computer science.*
Prerequisite: MTH 012 or equivalent.

CSE 132 Introduction to Computer Science (4)
Introduction to an algorithmic language such as PASCAL and to data structures including arrays, records and linked structures. Emphasis is on programming and algorithmic problem solving. Students cannot receive credit for both CSE 130 and CSE 132. Offered fall, winter.
Corequisite: MTH 141.

CSE 171 Introduction to Digital Logic and Microprocessors (4)
Introduction to digital logic and microprocessors. Machine language programming of microprocessors. Use of microcomputers for laboratory data acquisition and analysis. Offered fall, winter.
Prerequisite: CSE 132 and MTH 154.

CSE 201 Engineering Computer Use (1)
Microcomputer software of use to engineering and computer science students. Word processing, spreadsheets, data base management, data communications and graphics. Students cannot receive credit for both CSE 201 and CSE 125.

CSE 215 Natural and Artificial Languages (6)
Identical with LIN 215.

CSE 220 Computer-based Information Systems I (4)
Introduction to business data processing using the COBOL programming language. Emphasis is on structured programming and top-down development in an interactive environment. Offered fall, winter.
Prerequisite: Ability to program in at least one high level language.

CSE 221 Computer-based Information Systems II (4)
Continuation of CSE 220. Advanced capabilities of the COBOL language are studied. Topics include report writer, relative, direct and indexed files, data dictionaries, debugging. Sophisticated business data processing systems will be programmed. Credit applies to graduation but not the major.
Prerequisite: CSE 220 or equivalent.

CSE 232-245 Programming Language Labs
Group A:
CSE 232 Language Laboratory — FORTRAN (1); Prerequisite: CSE 130 or 132 or one high-level language.
CSE 233 Language Laboratory — COBOL I (1); Prerequisite: CSE 130 or 132 or one high-level language.
CSE 234 Language Laboratory — COBOL II (1); Prerequisite: CSE 233.
CSE 235 Language Laboratory — PASCAL (1); Prerequisite: one high-level language.
(Students cannot receive credit for both CSE 235 and CSE 130 or CSE 132)
CSE 236 Language Laboratory — PL/1 (1); Prerequisite: CSE 262
CSE 237 Language Laboratory — ADA (1); Prerequisite: CSE 262
CSE 238 Language Laboratory — C (1); Prerequisite: CSE 262
CSE 239 Language Laboratory — Modula-2 (1); Prerequisite: CSE 262

Group B
CSE 240 Language Laboratory — LISP (1); Prerequisite: CSE 262
CSE 241 Language Laboratory — FORTH (1); Prerequisite: CSE 280
CSE 242 Language Laboratory — APL (1); Prerequisite: CSE 262 and MTH 256
CSE 243 Language Laboratory — SNOBOL (1); Prerequisite: CSE 262
CSE 244 Language Laboratory — PROLOG (1); Prerequisite: CSE 262
CSE 245 Language Laboratory — SMALLTALK (1); Prerequisite: CSE 262

CSE 248 Systems Analysis and Design (4)
Function and responsibility of the systems analyst, including techniques in interview, charts, design, analysis, development, presentation and implementation. Other topics discussed include cost/benefit analysis, EDP auditing, COM and word processing.
Prerequisite: CSE 220.

CSE 262 Data Structures (4)
Elementary data structures and their application in computer programming. Linear lists, arrays, trees, forests and generalized lists and their implementation using sequential and linked storage. Recursive and non-recursive algorithms for representative data structure operations. Searching and sorting. Student projects for the course will be run on a minicomputer or mainframe with a complex operating system. Offered fall, winter.
Prerequisite: CSE 132 and MTH 154.

CSE 280 Computer Organization and Assembly Language Programming (4)
Introduction to the internal structure and operation of a digital computer. Hardware organization, machine language, instruction execution, digital arithmetic, addressing techniques and digital representations of data. Assembly language programming; assemblers and linkers; loading relocatable modules. Offered fall, winter.
Prerequisite: CSE 171.

CSE 315 Computer Parsing of Natural Language (4)
Identical with LIN 315.
Prerequisite: LIN/CSE 215 or ALS 176, CSE 130 or CSE 132.

CSE 335 Programming Languages (4)
Fundamental concepts in programming languages. Several high-level languages are studied in depth and their approaches to the fundamental issues in language design are compared. Issues include: data types and structures, control structures, binding times, run-time, storage organization, flexibility vs. efficiency, compiled vs. interpreted languages, strong vs. weak typing, block structure and scope of names. Offered fall, winter.
Prerequisite: CSE 262, CSE 280, MTH 256 and major standing.

CSE 340 File Systems Design (4)
Study of hardware configurations and software systems design for data-oriented applications. Characteristics of mass-storage devices and the impact of the characteristics on data processing algorithm design, standard file access techniques, file design for data processing applications. Offered fall.
Prerequisite: CSE 130 or CSE 132, junior standing.

CSE 343 Foundations of Computer Science (4)
An introduction to the theoretical foundations of computer science. Recursive functions, computability in programming languages, validity of algorithms, finite automata, Turing machines. Offered fall, winter.
Prerequisite: APM 263, CSE 262 and major standing.

CSE 345 Database Design and Implementation (4)
An introduction to the systematic design, creation and implementation of a relational data base using microprocessor-based data base management systems such as R:base 5000 and dBase III Plus. The course will emphasize practical applications of data bases and the solution of real problems. Intended for students wishing a minor in computer science; it may not be used for credit toward a degree program in Computer Science and Engineering. Students cannot receive credit for both CSE 345 and CSE 445. Offered winter.
Prerequisite: CSE 130 or CSE 132, junior standing.

CSE 388 Computer Hardware Design (4)
Boolean algebra, Karnaugh Map and Quine McCluskey method approaches to design. Combinational network design, multiplexers, decoders, encoders and priority encoders. Adder circuits, PLAs and Gate arrays. Sequential system: State minimization using row matching, implication chart and next class table methods. Applications to computer organization, microprogramming and computer design. Students cannot receive credit for both CSE 388 and EE 378. Offered fall, winter.
Prerequisite: CSE 171, PHY 152 and major standing.

CSE 402 Social Implications of Computers (1)
Seminars dealing with the professional, social, and ethical issues of computer science and engineering. Presentations by faculty, students, and visiting professionals. Graded S/U. Credit cannot be earned for both CSE 402 and EGR 401.
Prerequisite: Senior standing in the School of Engineering and Computer Science.

CSE 413 Statistical Pattern Recognition (4)
Applications of digital computer techniques to a variety of problems in pattern recognition. Linear decision functions, Bayes decision theory, maximum likelihood estimation, multivariate normal features, nonparametric techniques, feature selection, clustering and unsupervised learning. Applications include industrial inspection and the processing of remote sensing, biomedical and pictorial data. Offered fall.
Prerequisite: MTH 256, CSE 262, a course in statistics and major standing.

CSE 415 Expert Systems and Decision Support Systems (4)
The study of expert systems and decision support systems technologies. Both kinds of systems deal with reasoning with incomplete knowledge. Inexact logic, decision models, knowledge representation methods and design issues such as architecture of the systems, iterative design methods and evaluation. A project is required. Offered winter.
Prerequisite: CSE 262, CSE 335 and CSE 416.

CSE 416 Artificial Intelligence (4)
An introduction to artificial intelligence techniques including: knowledge representation using semantic networks, scripts, frames, predicate calculus, production and expert systems, and procedures; learning via symbolic and adaptive algorithms; natural language understanding; and game playing and other searching problems. Offered fall.
Prerequisite: CSE 240 or LISP, CSE 262, CSE 335.

CSE 417 Applied Numerical Methods: Approximations (4)
Propagation of errors; classical methods for the solution of non-linear equations, summation of series, approximation of functions, numerical integration, numerical solution of differential equations and the Fast Fourier Transform. Emphasis on student development of general purpose subroutines for use in engineering and scientific applications. Students cannot receive credit for both CSE 417 and APM 433. Offered fall.
Prerequisite: CSE 132, MTH 254 or MTH 256, and major standing.

CSE 418 Applied Numerical Methods: Matrix Methods (4)
Systems of linear and nonlinear equations, eigenvalue problems, optimization methods, statistical methods. Students cannot receive credit for both CSE 418 and APM 434. Offered winter.
Prerequisite: MTH 256, CSE 130 or CSE 132, and major standing.

CSE 438 Verification of Computer Programs (4)
Introduction to systematic methods of program verification, including proving and testing. Topics include program correctness, formal verification of programs, program and system testing, software tools. A significant part of the course will be its lab component. Offered winter.
Prerequisite: CSE 262, APM 263 and major standing.

CSE 439 Software Engineering (4)
The course will study, in a realistic environment, the techniques and methodology of developing programs for user applications. Topics include specifications, top-down modular design, structured programming, documentation, testing and verification. Offered fall.
Prerequisite: CSE 262 and major standing.

CSE 440 Software Quality (4)
Intended for students who have mastered fundamental design and programming skills. The impact of software design techniques on structural quality for both object-oriented and traditional decomposition techniques. Assessment of software quality via scientific experimentation and software metrics with emphasis on software understandability and maintainability. Offered winter.
Prerequisite: Knowledge of data structures and major standing.

CSE 445 Data Base Systems (4)
Design and implementation of relational, hierarchical and network data base systems. Query/update data languages, conceptual data model, physical storage methods, data base system architecture. Data base security and integrity. Relational data base systems are emphasized. A project involving an on-line data base system is normally assigned. Students cannot receive credit for both CSE 345 and CSE 445. Offered fall, winter.
Prerequisite: CSE 262 and major standing.

CSE 447 Computer Communications (4)
A study of data communications and computer networks with emphasis on the functional characteristics of communications hardware and the design of communications control software. Standard protocols and interfaces. Case studies of local area networks and wide area networks. Communications software is designed and implemented as student projects. Offered fall.
Prerequisite: CSE 450 or equivalent or permission of the instructor.

CSE 450 Operating Systems (4)
Introduction to the concepts and design of multi-programmed operating systems. Typical topics include: historical perspectives; sequential processes; concurrent processes; processor management; store management; scheduling; file management, resource protection; a case study. Offered fall, winter.
Prerequisite: CSE 262, CSE 280 and major standing.

CSE 455 Introduction to Computer Graphics (4)
An introduction to the software and hardware aspects of computer graphics systems. Vector and raster displays. Typical data structures and programming language requirements. Emphasis on real time-interactive graphics systems. Offered fall.
Prerequisite: CSE 262, MTH 256 and major standing.

CSE 456 Advanced Computer Graphics (4)
The mathematics, algorithms and data structures used for computer storage, manipulation and rendering of geometric objects. Curve and surface representation, including Bezier and B-Spline techniques; solid modeling, including constructive solid geometry and boundary representation schemes; surface and solid intersection techniques; hidden line and surface removal; shading and rendering techniques. Offered winter.
Prerequisite: CSE 455.

CSE 464 Computer Organization and Architecture (4)
Stored program computers, organization of arithmetic-logic unit, central processing unit, main and auxiliary memory, input/output units and exercises in microprogramming. Central and distributed processing computer networks, architecture of some main frame computers and some microprocessors, parallel and pipeline processing. Offered winter.
Prerequisite: CSE 388 and either CSE 280 or CSE 470.

CSE 465 Compiler Design (4)
The student is directed through development of a compiler for a simple language that can be executed on a simulated computer. Topics include: overview of grammars and languages; scanning input strings from a source language; parsing via bottom-up methods; internal forms for source programs; semantic routines; and symbol table organization. The compiler is constructed in a high-level language such as Pascal. Offered winter.
Prerequisite: CSE 262 and APM 263. Corequisite: CSE 335.

CSE 470 Microprocessor-based Systems Design (4)
Application of microprocessors and microcomputers to the solution of typical problems; interfacing microprocessors with external systems; programming considerations. This is a laboratory, design oriented course. Several short design projects and one large design project will be given. Credit cannot be earned for both CSE 470 and EE 470. Offered fall, winter.
Prerequisite: CSE 388 or EE 378. (Computer science majors may take CSE 470 with the permission of the instructor.)

CSE 471 Design of Embedded Software Computer Systems (4)
The use of threaded interpretive languages in the design of board-level computer systems. Embedded software drivers for parallel and serial communications, A/D converters and other peripheral interface devices. Project-oriented course. Offered winter.
Prerequisite: CSE 470. Corequisite: CSE 241.

CSE 478 Switching Theory and Digital Logic (4)
Combinational switching functions, minimization and analysis, implementation using relay circuits, TTL, CMOS and other popular logic families. Symmetric functions, threshold logic and iterative circuits. Analysis and synthesis of clock mode, level mode and pulse mode sequential circuits. Design and implementation of digital systems. Turing machines and finite automata. Offered fall.
Prerequisite: CSE 388 and APM 263.

ELECTRICAL ENGINEERING

EE 222 Introduction to Electrical Circuits (4)
Resistive dc circuits, Kirchoff laws, Thevenin and Norton theorems, controlled sources, operational amplifiers, superposition, source transformations. Transient and forced response in RC, RL and RLC circuits, impedance concept and phasors, RMS values and average power. With laboratory. Offered fall, winter.
Prerequisite: MTH 155 and PHY 152.

EE 326 Electronic Circuit Design (4)
Semiconductor diodes; characteristics, diode models and applications. Bipolar and unipolar transistors (BJT, j-FET, MOSFET, enhancement and depletion types). Transistor models; design and analysis of transistor amplifiers; stability and limitations. PSPICE software simulations. With laboratory and design projects. Offered fall, winter.
Prerequisite: EE 222, MTH 155, PHY 152 and major standing.

EE 345 Electric and Magnetic Fields (4)
Fundamentals of electric and magnetic fields. Fundamental laws, basic postulates, Maxwell's equations, electrostatics, magnetic fields of steady currents, time varying fields and electromagnetic waves.
Prerequisite: MTH 254, PHY 152 and major standing. Offered winter.

EE 351 Electromechanical Energy Conversion (4)
Magnetic circuits, transformers, electromechanical energy conversion. Operation of dc and ac machines. Equivalent circuits, input/output characteristic, and efficiency. Analytical and computer design considerations for electrical machines. With laboratory. Offered fall, winter.
Prerequisite: SYS 325.

EE 378 Design of Digital Systems (4)
Development of the components and techniques at the gate and flip-flop level needed to design digital systems for instrumentation, communication, control and related fields. Topics include combinational logic circuits, memory devices, sequential circuits and organization of digital systems. Students cannot receive credit for both EE 378 and CSE 388. With laboratory. Offered fall, winter.
Prerequisite: CSE 171 and EE 326.

EE 384 Electronic Materials and Devices (4)
Semiconductor physics; carrier models and the conduction mechanisms. Theory of P-N junction and junction devices. Field effect devices, concepts, models and analytical procedures related to j-FET, MOS-capacitator and MOS transistors. Fundamentals of integrated circuits and basic fabrication steps. Software simulations. Offered fall.
Prerequisite: EE 326.

EE 426 Advanced Electronics (4)
Transistor circuit design and analysis. Multistage small signal, and power amplifiers design, feedback in amplifiers, frequency response, stability and sensitivity. Design and analysis of linear and nonlinear operational amplifiers and regulator and power supply circuits; circuit protection. Design of signal generators, multivibrators and function generators. Emphasis is placed on designing through a sequence of laboratory experiments and projects. Offered winter.
Prerequisite: EE 326 and SYS 325.

EE 428 Industrial Electronics (4)
Applications of advanced electronics to manufacturing processes. Analysis and design considerations for industrial electronic systems. Hardware and software implementation in computer-integrated manufacturing (CIM) systems. Modeling and characteristics of integrated process elements. Transducers, signal conditioning and transmission; analog and digital controllers; thyristor commutation techniques; power supplies and interfaces, DC and AC drives and motor control circuits. With laboratory and design projects.
Prerequisite: EE 326 and SYS 325.

EE 437 Introduction to Communication Electronics (4)
Analysis and design of analog and digital electronic communication circuits and systems. Spectral analysis, linear system responses. Amplitude and angle modulation, AM and FM reception principles and receivers. Pulse and digital communication systems, pulse code modulation, time division multiplex, pulse shift keying, frequency shift keying and other types of modulation. Introduction to noise in communication systems. With laboratory. Offered fall, winter.
Prerequisite: EE 326 and SYS 325.

EE 470 Microprocessors-based Systems Design (4)
Application of microprocessors and microcomputers to the solution of typical problems; interfacing microprocessors with external systems; programming considerations. This is a laboratory, design oriented course. Several short design projects and one large design project will be given. Credit cannot be earned for both CSE 470 and EE 470. Offered fall, winter.
Prerequisite: CSE 388 or EE 378.

EE 472 Microcomputer-based Control Systems (4)
Microcomputer-aided control system design and implementation techniques; board-level microcomputer and digital signal processor technology; design and realization of digital controllers, estimators and filters; hardware development of stand-alone on-line microcomputer/processor based control systems; real-time applications and multi-processor systems. A laboratory and project oriented course.
Prerequisite: EE 326, EE 470 and SYS 431.

EE 485 MOS Very Large Scale Integration (4)
MOS integrated circuit fundamentals. NMOS, PMOS and CMOS processes. Inverters, logic and transmission gates, propagation delays. Design techniques for analog and digital circuits, performance evaluation, speed/area/power trade off. PLAs, finite state machines, memory, registers, A/D and D/A converters. System timing, subsystem design and layout (LEDIT or MAGIC). VLSI system implementation projects. Offered fall.
Prerequisite: EE 384.

EE 487 Integrated Electronics (4)
Modern microelectronics processes and fabrication of integrated circuits. Crystal growth and wafer preparation, photolithography, dielectric and polysilicon film deposition, epitaxial growth, oxidation, diffusion, ion implantation, etching, metallization and integrated circuits layout principles. Introduction to MOS-based and bipolar junction transistor-based microcircuits design and fabrication. With laboratory and projects. Offered winter.
Prerequisite: EE 384.

MECHANICAL ENGINEERING

ME 221 Statics and Dynamics (4)
Introduction to mechanics, particle statics and dynamics, equilibrium, analysis of structures and dynamics of rigid bodies about fixed axes. With laboratory. Offered fall, winter.
Prerequisite: MTH 155. Corequisite: PHY 151.

ME 241 Thermodynamics (4)
The fundamentals of classical thermodynamics. The various forms of energy, and the effects of conversions and energy transfers on system and material properties. Thermodynamic property relationships are studied along with the fundamental laws of thermodynamics. Applications to engineering systems and processes. Laboratory emphasizes experimental design. Offered fall, winter.
Prerequisite: CHM 144 or CHM 164, MTH 155, PHY 151.

ME 321 Dynamics and Vibrations (3)
Kinematics and dynamics of systems of particles. Work and energy, impulse and momentum. Planar rigid body motion. Vibration of lumped mechanical systems. Undamped and damped free vibrations including torsional vibrations for single-degree-of-freedom systems. Harmonically forced vibrations for single-degree-of-freedom systems. Applications to engineering problems. Offered fall.
Prerequisite: ME 221, APM 257. Corequisite: SYS 325.

ME 331 Introduction to Fluid and Thermal Energy Transport (4)
The fundamentals of fluid mechanics and heat transfer; conservation and momentum principles; viscous and inviscid flow; laminar and turbulent flow; introduction to viscous and thermal boundary layer theory; one-dimensional conduction heat transfer and characteristics and dimensionless correlations of convection heat transfer; applications to engineering problems. Laboratory emphasizes experimental design. Offered fall, winter.
Prerequisite: ME 221, ME 241, MTH 254 and major standing.

ME 361 Mechanics of Materials (4)
Introduction to the mechanics of deformable bodies: distribution of stress and strain in beams, shafts, columns, pressure vessels and other structural elements, factor of safety, yield and fracture criteria of materials with applications to design. With laboratory including two-dimensional truss and beam design on computer. Offered fall, winter.
Prerequisite: ME 221. Corequisite: EGR 372.

ME 438 Fluid Transport (4)
Continued study of the fundamentals of fluid mechanics and their applications, angular momentum principle; generalized study of turbomachines, potential flow of inviscid fluids, laminar and turbulent boundary layer theory, dimensional analysis and similitude, compressible flow. With laboratory emphasizing engineering design. Offered fall.
Prerequisite: ME 241, ME 331 and APM 257.

ME 448 Thermal Energy Transport (4)
Continued study of properties and descriptions of conduction, convection and thermal radiation heat transfer; thermal boundary layer theory; forced and natural convection, heat transfer correlations. Thermodynamics of thermal radiation, radiation intensity, surface properties and energy exchange. Laboratory emphasizes experimental design and development of empirical relationships. Offered winter.
Prerequisite: ME 241, ME 331 and APM 257.

ME 449 Numerical Techniques in Heat Transfer and Fluid Flow (4)
Overview of practical numerical solution techniques. Major emphasis is on concepts, methodology, and physics associated with the formulation of the discretization equations appropriate for the representation and solution of linear and nonlinear partial differential equations governing heat transfer and fluid flow. Personal and mainframe computers will be used for the solution of a variety of engineering and design problems. Offered winter.
Prerequisite or corequisite: ME 438 or ME 448 or equivalent.

ME 454 Solar and Alternate Energy Systems (4)
The analysis and design of energy conversion systems. Principles of optimum power transfer and efficiency. Availability analysis of systems for heating, chemical conversion and electrical generation. Emphasis on solar applications and alternative energy technology. Includes design project(s). With laboratory. Offered winter.
Prerequisite: ME 241 and ME 331.

ME 456 Energy Systems Analysis (4)
The analysis and design of thermodynamic systems. Applications include thermodynamic cycles for vapor-compression and air-standard power systems; the thermodynamics of non-reacting and reacting mixtures, including chemical equilibrium concepts; and available energy concepts. Design project (and/or laboratory) required. Offered winter.
Prerequisite: ME 241 and major standing.

ME 461 Analysis and Design of Mechanical Structures (4)
Use of methods of advanced mechanics of materials to design mechanical structures to meet elastic strength criteria. Topics include plates and shells, torsion of noncircular cross-sections, beams on elastic foundation, curved and composite beams, rotating disks, thick-walled cylinders, and energy methods. Offered fall.
Prerequisite: ME 361.

ME 472 Materials Properties and Processes (4)
Study of mechanical behavior of real engineering materials and how they influence mechanical design. True stress/strain properties of materials, plastic deformation and fracture of materials, failure theories, fatigue damage under cyclic loading, creep and high temperature applications. Material properties of engineering metals, ceramics and composites. Behavior of materials during and after manufacturing processes such as stamping, drawing, extrusion, etc. Offered winter.
Prerequisite: ME 361 and EGR 372.

ME 482 Fluid and Thermal Energy Systems (4)
Study of systems involving fluid and thermal phenomena. Includes conventional and unconventional energy conversion, fluid and thermal energy transport. Analysis for the purpose of design and optimization of systems are emphasized using basic integral, differential and lumped-parameter modeling techniques. The course bridges conventional engineering design disciplines with design-oriented laboratory projects. Offered fall.
Prerequisite: ME 241, ME 331 and APM 257.

ME 486 Machine Design (4)
Study of machine elements and systems. Stress, strength, deflection, buckling, and cost considerations, design optimization criteria and strategies. Analysis and design of fasteners, springs, welds, bearings, power transmitting elements and complex structures subjected to static and/or dynamic loads. Includes major design project. Offered winter.
Prerequisite: ME 361.

ME 487 Mechanical Engineering CAD/CAM Systems (4)
Introduction to the use of CAD/CAM systems in mechanical engineering design. Fundamentals of computer graphics, finite element modeling and interactive design. Analysis and evaluation of the static, dynamic and thermal mechanical systems designed on the CAD/CAM system. Includes design project(s) in various topics. Offered fall.
Prerequisite: ME 361. Corequisite: ME 321.

ME 492 Senior Mechanical Engineering Design Project (3)
Independent or team experience in engineering design of systems, components, or processes involving mechanical and/or fluid and thermal sciences. Emphasis will be given to the design process, utilizing the fundamental concepts, principles and methodologies encountered in earlier course work. Projects, both individual and team, will be supervised by mechanical engineering faculty. Normally taken during senior year. Offered fall.
Prerequisite: ME 331, ME 361 and approval of project faculty supervisor.

SYSTEMS ENGINEERING

SYS 317 Engineering Probability and Statistics (3)
Elements of probability for discrete and continuous random variables; examples and problems from various areas of engineering are used to illustrate developments and their applications. Topics covered include finite sample spaces, two or more events, random variables, distribution functions, expected value, functions of a random variable, two or more random variables; introduction to statistics, control charts and tolerancing. Offered fall, winter.
Prerequisite: Major standing. Corequisite: MTH 254 or MTH 256.

SYS 325 Lumped-parameter Linear Systems (3)
Laplace transform methods, transfer functions and impedance concepts in the analysis of electrical and mechanical lumped-parameter linear systems. Natural and forced behavior of first- and second-order systems. Relationship between pole-zero pattern and dynamic response. Frequency response methods. Computer techniques for analysis and design. Offered fall, winter.
Prerequisite: EE 222, APM 257 and major standing.

SYS 410 System Optimization and Design (4)
Classical optimization techniques including Lasgrange multipliers and Kuhn-Tucker conditions. Computer techniques for system optimization including linear programming, constrained and unconstrained nonlinear programming. System design — case studies. The course emphasizes a capstone design experience involving system modeling, simulation and optimal design. Offered fall.
Prerequisite: MTH 256 and SYS 325.

SYS 422 Robotic Systems (4)
Overview of industrial robots, their components and typical applications. Kinematics of robots and solution of kinematic equations. Path planning. Vision and pattern recognition. Robot and vision programming languages. Laboratory experience in the development and implementation of a robot language environment using minirobots. Offered fall.
Prerequisite: CSE 132, SYS 325.

SYS 431 Automatic Control Systems (4)
Performance specifications for automatic control systems. Modeling transfer functions, signal flow graphs and Mason's gain formula. Static error coefficients, stability theory and Routh's criterion. The root locus method. Frequency response and the Nyquist criterion. Design of compensation networks. Laboratory includes the analysis of actual physical systems and the design of compensators for these systems with circuit realization. Offered fall and winter.
Prerequisite: SYS 325.

SYS 433 Modern Control System Design (4)
State-of-the-art design methodology for control systems, state space modeling of physical systems, modal transients, feedback control. Integrated system design by analytical and computer simulation methods emphasized. The course includes a design project for which the student is required to model, design, implement and evaluate a controller for a physical system. With laboratory. Offered fall.
Prerequisite: SYS 431.

SYS 458 Electrical Energy Systems (4)
Generation, transmission and distribution of electrical energy. Analysis and design of three-phase circuits, per unit normalization, system design evaluation and load-flow, symmetrical components and stability. Offered winter.
Prerequisite: SYS 325.

SYS 463 Foundations of Computer-aided Design (4)
Computer-aided design as the keystone in computer integrated manufacturing. Designs of mathematical representations for applications and databases. Hermite, Bezier, splines, B-splines and Liming curves. Hermite, Bezier, Coon's tensor product and Gordon surfaces. Approximation versus design of curves and surfaces. Communication among computer-aided design systems.
Prerequisite: CSE 262 and major standing.

SYS 469 Computer Simulation in Engineering (4)
Basic modeling and simulation methods for discrete, lumped, and continuum systems, discrete-event systems; software verification and interactive graphical output interpretation; fundamentals of system identification; model validation and credibility considerations. Emphasis on modern simulation theory, software and design demonstration of practical engineering applications including manufacturing systems. Offered winter.
Prerequisite: SYS 325 or CSE 343.

SYS 483 Production Systems (4)
Design of computer systems to control the flow of material in manufacturing systems from forecast to finished product. Topics include parts explosion, bill-of-material, inventory control, Pareto distribution, lead time, MRP, shop floor control, line balancing, etc. Offered fall.
Prerequisite: SYS 317.

SYS 484 Flexible Manufacturing Systems (4)
The components of flexible manufacturing systems (FMS): machining centers, automated assembly, automated warehousing, inspection, material transport, programmable logic controllers and coordination; integration of CAD, CAM, to the FMS; production planning and control; factory simulation; implementation strategies. With laboratory. Offered winter.
Prerequisite: Major standing.

SYS 485 Statistical Quality Control (4)
Fundamentals of statistical quality control and their use in the design of systems. Control charts for mean and range for variable, control charts for attributes, cusum charts, runs and other process quality monitoring topics. Single, double and multiple sampling inspection plans, sequential sampling and related topics. Offered winter.
Prerequisite: SYS 317.

GENERAL STUDIES

121 NORTH FOUNDATION HALL (313) 370-3227

Director: *Virginia R. Allen*

Faculty council for general studies: *John Cowlishaw, chairperson; Natalie Cole, assistant professor, English; Laurie Eisenhower, assistant professor, Music, Theatre and Dance; Aleksandra Glowacka, assistant professor, School of Business Administration; John Goike, student representative; Thaddeus Grudzien, assistant professor, Biological Sciences; Linda Hildebrand, assistant professor, Kresge Library; Roy Kotynek, associate professor, History; Michael Latcha, assistant professor, School of Engineering and Computer Science; David Lau, assistant professor, Rhetoric, Communications and Journalism; Charles Marks, assistant professor, School of Health Sciences; Jerry Marsh, special instructor, School of Engineering and Computer Science; Kevin Nathan, assistant professor, School of Business Administration; Nancy O'Conner, assistant professor, School of Nursing; Subbaiah Perla, associate professor, Mathematics; Ann Pogany, assistant professor, Kresge Library; Harold Zepelin, professor, Psychology*

The Bachelor of General Studies

The Bachelor of General Studies degree (B.G.S.) is a university-wide baccalaureate program that offers maximum flexibility and opportunity for student decision-making about courses of study at Oakland University. The degree is primarily intended for students wishing to create a program to meet their individual goals through interdisciplinary study.

Students entering the General Studies program design a program of study utilizing courses from many departments to prepare them for a particular job or career choice. Students may select courses from any field of study offered by an academic department, subject to prerequisites and policies set by the individual departments. This program offers students the opportunity to plan a unique and challenging academic program in cooperation with a General Studies faculty adviser.

Students changing major into B.G.S. must meet the program requirements described in the catalog extant at the time of the change, or may meet program requirements described in a subsequent catalog. Any catalog which students are following must not be more than six years old at the time of graduation.

Frequently, students seeking the degree have earned academic credits from other colleges and have been encouraged by their employers to pursue a baccalaureate degree. The General Studies program has flexible policies on transfer credits from other institutions, and it provides a personalized program to meet the educational needs of individuals and employers. Pre-enrollment counseling is available to those who are considering this degree.

Students applying to the General Studies program are first admitted to pre-B.G.S. status. Students will be granted major standing upon approval of their plan of work and supporting rationale by the General Studies Faculty Advising Committee. The B.G.S. program is administered by the Department of Academic Services and General Studies, 121 North Foundation Hall (370-3227).

As the Bachelor of General Studies is an alternative to a traditional degree, it is not permissible to seek a double degree with the Bachelor of General Studies serving as one of those degrees. For the same reason, students who have already earned a baccalaureate may not earn an additional baccalaureate in General Studies.

Two-Plus-Two program for associate degree holders

The General Studies program allows students to combine broad liberal arts and professional courses from the university curriculum with associate degrees from Michigan community colleges. The Two-Plus-Two program provides for transfer of up to 62 semester credits from accredited

two-year community colleges in Michigan. Students with associate degrees in any area except nursing may qualify for the Two-Plus-Two General Studies program. Holders of associate degrees in nursing are subject to a course by course evaluation.

The program requires that courses accepted for transfer must have a grade of C or above, that at least 12 semester credits have been earned in liberal arts courses, and that all course work has been taken at accredited institutions. Certain developmental courses may be subject to individual evaluation. For additional information, see the *Transfer student information* section of the catalog.

Requirements for the degree in Bachelor of General Studies

To earn the Bachelor of General Studies degree, students must meet the following requirements:

1. Complete the writing proficiency requirement.
2. Complete the general education requirements. (See *Undergraduate degree requirements*.)
3. Complete a minimum of 124 semester credits.
4. Complete 32 of those credits at the 300- or 400-level.
5. Complete 32 credits at Oakland University; complete the last 4 credits toward the degree at Oakland.
6. Successfully complete at least the last 24 credits at Oakland University as an admitted candidate for the Bachelor of General Studies degree. Courses used to meet the writing proficiency requirement or the general education requirement may not be counted in these 24 credits. If the plan of work is not submitted in a timely manner, the credits in any current semester may be excluded from the plan of work. Candidacy is authorized by the university and the Faculty Council for General Studies when a student's plan of work and supporting rationale have been approved by the General Studies Faculty Advising Committee.

Concentrations or minors

General Studies students may wish to develop programs that include concentrations or minors offered by other academic schools or departments within the university. Approximately 50 minors and concentrations are available to General Studies students; a complete listing may be obtained from the General Studies office. Forms for written approval of concentrations or minors can be obtained from the General Studies office (121 North Foundation Hall).

Students should consult a General Studies counselor to determine policies and procedures on seeking minors or concentrations.

Advising

Advising is central to the program as students design an individualized and unique program of study based upon interests and needs. Students must follow a specific advising procedure as follows:

1. Meet with a General Studies counselor in a preliminary appointment. The counselor will explore the suitability of the program to student needs and interests. The counselor will also discuss student eligibility to enter the program. Students entering the program through a change of major or through the readmission process must have a cumulative grade point average of at least 2.00. Students on academic probation will not be considered for the program.
2. Be assigned a faculty adviser. When pre-B.G.S. has been declared as a program of study, students will again meet with the counselor to receive the plan of work form and rationale guidelines. Students and the counselor will mutually select a faculty adviser.
3. Develop a plan of work and rationale with the faculty adviser. Students will initiate a meeting with the faculty adviser to discuss their goals and the courses that may help achieve those goals. In addition to creating a plan of work, students will write a rationale for course selection.

4. Attain committee approval. After the faculty adviser approves them, the plan of work and rationale are returned to the General Studies office and sent to the Faculty Advising Committee for approval. When the plan of work and rationale have been approved at a monthly meeting of the committee, students will be granted major standing.
5. Make substitutions as needed to the plan of work. Students who want to take courses other than those listed on their approved plans of work must earn consent of their faculty adviser or a General Studies counselor. Plan of Work Substitution forms are available from the General Studies office or faculty advisers. They must be submitted to the General Studies office.

Conciliar honors

Conciliar honors are awarded to General Studies students by the Faculty Council for General Studies.

There are two ways in which students may earn conciliar honors. Students who have cumulative grade point averages of 3.60 or better are automatically nominated for conciliar honors. Students may be nominated for honors if they have cumulative grade point averages between 3.30 and 3.59. Students may nominate themselves or be nominated by a faculty adviser. Written nominations, accompanied by faculty recommendations, should be made on the basis of excellence in scholarship, appropriate community and university experience, and/or achievement of academic distinction while overcoming extreme adversity. Nominations will be considered by the advising committee and will be forwarded to the faculty council for final approval.

On-campus Evening Degree Programs

Students may earn undergraduate degrees at night in 16 majors, including General Studies. See *Evening programs* for details.

SCHOOL OF HEALTH SCIENCES

157 VANDENBERG HALL (313) 370-3562

Dean: *Ronald E. Olson*

Office of the Dean: *Alfred W. Stransky, associate dean for community health; Arthur J. Griggs, assistant to the dean; A. Jayne Hoskin, academic adviser; Clifford Snitgen, manager, Clinical Research Laboratory*

Consulting professors: *Federico A. Arcari, Duane L. Block, John P. Cullen, Kenneth L. Urwiller, John R. Ylvisaker, Richard J. Zunker*

Clinical professors: *Seymour Gordon, Myron M. LaBan, Moon J. Pak, John R. Pfeifer*

Clinical associate professors: *Ali A. Abbasi, George R. Gerber, David R. Pieper, Jeanne M. Riddle, Alexander Ullmann*

Clinical assistant professor: *Nitin C. Doshi*

General Information

The School of Health Sciences offers degree and non-degree programs in health and medically related fields. Currently, programs leading to the Bachelor of Science degree include industrial health and safety and medical laboratory sciences. A program leading to the Master of Physical Therapy degree is offered to students initially completing a required undergraduate pre-physical therapy curriculum and a Bachelor of Science in health sciences. A program leading to the Master of Science degree is offered in exercise science. Non-degree programs at the undergraduate level include exercise science and health behavioral sciences.

The Meadow Brook Health Enhancement Institute is a university facility which cooperates closely with the School of Health Sciences. The institute offers programs addressing the important elements of health enhancement, including nutrition, weight control, physical fitness and other issues. The institute also provides programs for cardiac rehabilitation, industrial health and movement re-education.

The School of Health Sciences' Clinical Research Laboratory provides facilities and expertise to university and subscribing hospital investigators involved with biomedical research.

Admission to any program offered by the School of Health Sciences may be granted competitively if the balance between applicants and available instructional resources requires such action to maintain the academic integrity of the program.

High school students considering a major in any of the programs offered by the School of Health Sciences should consult the *Admissions* section of the catalog for specific preparation requirements.

Health Science core curriculum

The health science core curriculum is a common component of introductory course work required for each of the baccalaureate programs offered through the School of Health Sciences. The core curriculum also represents an appropriate starting point for undecided health science students, since its flexibility allows for entry into any of the health science programs at Oakland University, as well as most health science degree programs at other universities.

Students pursuing the physical therapy degree are initially required to complete a pre-professional program (pre-physical therapy) which entails the health science core curriculum.

Following this step, students must apply for admission to major standing in physical therapy which is both selective and competitive. The limited number of students accepted into the major program must complete the Bachelor of Science in health sciences and Master of Physical Therapy degree in order to function professionally as physical therapists.

The programs in industrial health and safety and medical laboratory sciences do not incorporate a pre-professional component; thus, students may declare either major upon entry to the university. In these cases, the core curriculum will be completed during the course of the baccalaureate program. Early completion of some of the core curriculum courses is recommended, since they are prerequisites to required advanced courses in the industrial health and safety or medical laboratory sciences programs.

The academic requirements for each of the baccalaureate programs of the school are described in the pages that follow. In addition to the core curriculum, the requirements include additional prerequisite-level course work that complements the core curriculum, the program major course requirements, the university general education requirements and the university writing proficiency requirement.

Students completing the core curriculum course work at Oakland University may, in some instances, substitute equivalent or higher level courses for core curriculum courses; this action must be approved by the appropriate program director and the School of Health Sciences Committee on Instruction. Students transferring from other universities or colleges to Oakland University must have their transcripts evaluated by the School of Health Sciences to determine which core curriculum or program course work requirements have been met. See *Transfer student information* for additional information.

Core curriculum courses*

BIO 200; 207 or 321
CHM 144-145
MTH*
STA 225 or 226
PHY 101-102 or 151-152
HBS 200
HS 101

*See the academic requirements of the individual health science programs for core curriculum course preferences or requirements.

Approved minors

School of Health Sciences students may elect to complete a minor in another discipline offering such an option. It is recommended that students who are considering declaring a minor consult as early as possible with the School of Health Sciences academic adviser and the minor field adviser. Credits earned toward a degree in the School of Health Sciences can be double counted toward any minor to which they would otherwise apply offered by the other schools or the college.

Petition of exception

For students enrolled in health science programs, all petitions of exception must be reviewed by a faculty member or the academic adviser and reviewed by the appropriate program director before referral to the Health Sciences Committee on Instruction. See the *Academic Policies and Procedures* section of the catalog for further information *(Petition of exception)*.

Course Offerings

HS 101 Careers in the Health-Related Professions (0)
Seminar/survey of professional opportunities in the various health fields such as medical technology, histotechnology, cytotechnology, nuclear medicine technology, exercise science, industrial health and safety, medical physics, physical therapy, occupational therapy, respiratory therapy and pharmacy.

HS 201 Health in Personal and Occupational Environments — Ideas, Concepts, Issues and Applications (4)
Current information about the impact of environmental and life-style factors on health. Examination of issues related to human exposure to physical, chemical and biological stresses. The impact of exercise, weight control, substance abuse, nutrition and stress management on a person's ability to cope with environmental stresses will be analyzed. *Satisfies the university general education requirement in natural science and technology.*

HS 324 Clinical Application of Learning Theories (2)
A review of child, adolescent and adult/older adult learning theory as it relates to patient interaction. Teaching strategies are presented relating to instruction of students, peers and patients on an individual or group basis.
Prerequisite: HS or MLS majors.

HS 331 Pharmacology (2)
An introduction to the principles of pharmacology, including the principles of drug therapy and the actions of the basic classes of drugs. Will satisfy requirements for NRS 230.
Prerequisite: BIO 207 or 321.

HS 391 Research I (1)
Theory and application of the principles of problem solving and the scientific method with an emphasis on current research.
Prerequisite: HS or MLS majors.

HS 401 Introductory Pathology (4)
Basic principles of human pathology appropriate for students pursuing curricula in the health related disciplines. Diseases of the major systems of the body are studied.
Prerequisite: BIO 200 and BIO 207 or 321.

HS 405 Special Topics (2, 3 or 4)
May be repeated for additional credit.
Prerequisite: Permission of instructor.

Exercise Science Program

Interim Director: *Alfred W. Stransky*

Associate professors: *Brian R. Goslin, Robert W. Jarski, Alfred W. Stransky*

Assistant professor: *Charles R. C. Marks*

Clinical professor: *Murray B. Levin*

Clinical associate professors: *William R. Back, Barry A. Franklin, John J. Karazim, John F. Kazmierski, Creagh M. Milford, Rajendra Prasad*

Clinical assistant professors: *Joseph A. Arends, Albert A. DePolo, Timothy Ismond, Robert C. Nestor, Chandra S. Reddy, Thomas E. Schomaker, Robert L. Segula*

Lecturers: Roberta J. Dailey, Henry R. DeLorme, Lillian E. Smith, Jack T. Wilson

The exercise science program offers elective courses for students interested in the relationship among physical activity and weight control, disease prevention, stress management, nutrition and optimal health and 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 recent emphasis placed on health promotion and disease prevention within the health care delivery system.

For a description of the Master of Science in exercise science program see the *Oakland University Graduate Catalog.*

Minor in Exercise Science

A minor in exercise science is available to students seeking a formal introduction to the exercise science field. An undergraduate degree focusing on exercise science may be designed by including this minor in a Bachelor of General Studies plan of work. Courses required for the minor include: HS 201; EXS 204, 304*, 350*; and six credits from the following electives: EXS 101-104* (4 credits maximum), 202, 207*, 215, 493 (2 credits maximum). Those 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 225 or 226, or PSY 251.)

Course Offerings

EXS 101 Exercise (Jogging) and Health Enhancement (2)
An examination of lifestyle factors related to disease prevention and improved quality of life. This course combines regular walking-jogging exercise and health enhancement lectures. Course content in EXS 101, 102 and 104 includes the same lecture topics. Students who have received credit or who are currently enrolled in EXS 102 or 104 may not repeat the lecture material or final examination. An independent project and/or a different final examination must be completed before receiving credit.

EXS 102 Exercise (Swimming) and Health Enhancement (2)
An examination of lifestyle factors related to disease prevention and improved quality of life. This course combines regular swimming exercise and health enhancement lectures. Course content in EXS 101, 102 and 104 includes the same lecture topics. Students who have received credit or who are currently enrolled in EXS 101 or 104 may not repeat the lecture material or final examination. An independent project and/or a different final examination must be completed before receiving credit.

EXS 103 Exercise (Strength Training) and Health Enhancement (2)
An examination of lifestyle factors related to disease prevention and improved quality of life. This course combines regular exercise and health enhancement lectures. The mode of exercise in this course is strength training.

EXS 104 Exercise (Aerobics) and Health Enhancement (2)
An examination of lifestyle factors related to disease prevention and improved quality of life. This course combines regular aerobics exercise and health enhancement lectures. Course content in EXS 101, 102, and 104 includes the same lecture topics. Students who have received credit or who are currently enrolled in EXS 101 or 102 may not repeat the lecture material or final examination. An independent project and/or a different final examination must be completed before receiving credit.

EXS 202 Introduction to Exercise Science (2)
An examination of graduate and occupational opportunities in exercise science. This course includes special topics in motor learning, exercise physiology, kinesiology and sports medicine.

EXS 204 Weight Control, Nutrition and Exercise (4)
Exploration of the role of exercise and optimal nutrition in weight control/loss. Emphasis on effective eating, energy balance, physiology of weight loss, behavior modification, and health risks of obesity. Includes practical laboratory experiences. Recommended for students wishing to develop successful weight loss/control skills and improved nutritional habits.

EXS 207 American Red Cross Advanced First Aid (2)
Understanding of procedures in the immediate and temporary care of victims of an accident or sudden illness. In addition, course content includes "safety-proofing" facilities and equipment.

EXS 211 American Red Cross Senior Lifesaving and Water Safety Instruction (2)
Principles and procedures for swimming, lifesaving and water safety with student participation. ARC certification upon successful completion of course.

EXS 215 Stress Management (2, 3 or 4)
Concepts and techniques to enable students to manage stress more effectively.

EXS 304 Exercise Physiology (4)
Effects of exercise and physical training on the physiological systems of the body, with emphasis on cardiorespiratory systems. Includes muscle contraction mechanisms, circulatory and respiratory adjustment during exercise, and nutrition for physical activity. Laboratory experiences are provided for insight into the dynamics of human performance.
Prerequisite: BIO 200 and 207.

EXS 350 Human Motion Analysis (4)
The study of basic mechanical and kinesiological principles and their functions, interrelationships, and involvement with the mechanics of human motion.
Prerequisite: BIO 205.

EXS 493 Independent Study and Research (1, 2, 3 or 4)
Special study areas and research in exercise science. May be repeated for additional credit.
Prerequisite: Departmental permission.

Health Behavioral Sciences Program

Director: *Carl R. Vann*

Professors: *Philip Singer, Carl R. Vann*

Clinical professor: *Daniel E. DeSole*

Clinical associate professor: *Ruben S. Kurnetz*

Clinical assistant professors: *Jay W. Eastman, Jed G. Magen, Anthony R. Tersigni*

Adjunct assistant professor: *William Dobreff*

Courses in health behavioral sciences are recommended as electives for students pursuing degree programs offered by the School of Health Sciences. Students interested in a program in health services administration should consult the Department of Political Science in order to combine courses in health behavioral sciences with a program in public administration.

Concentration in health behavioral sciences

The concentration in health behavioral sciences should be taken in conjunction with a regular departmental major or independent major. Its purpose is to offer a multidisciplinary perspective of the behavioral sciences on the many and varied aspects of the health disciplines, problems and concerns. It provides a cross-cultural as well as an American perspective. It is especially relevant to students seeking careers in health-related fields and it offers significant insights and opportunities for study to students pursuing programs in general education, administration and law.

The requirement for the concentration in health behavioral sciences is successful completion of 20 credits, chosen from: HBS 200, 300, 359, 400 and 499; AN 333 and 420; ECN 467; and PA 568 and 569.

Course Offerings

HBS 200 Health Care Dimensions (4)
Development, present status, and dynamics of the American health care system emphasizing structure of the various health professions and the problems, opportunities, and constraints of health care delivery, and professionalism. Other topics are relationships between the health care cultures and personality and professional roles of health care practitioners, and issues involving hospitals and health care.

HBS 300 Independent Study in the Health Behavioral Sciences (4, 8, 12 or 16)
A semester of off-campus independent study and applied research. Projects are developed with and supervised by faculty within the framework of methodology and explanation in the behavioral sciences. May be repeated for a maximum of 16 credits.

HBS 359 Public Policy and Health Care (4)
Identical with PS 359.

HBS 400 Field Practicum in Health Behavioral Sciences (4, 8, 12 or 16)
Primarily for students seeking careers in health-related fields, this course is a supervised field placement combined with academic content and individually guided research. Students are placed with hospitals, government and voluntary health agencies, comprehensive medical service organizations, etc. May be repeated for a maximum of 16 credits.

HBS 499 Senior Seminar in Health Behavioral Sciences (4)

Industrial Health and Safety Program

Director: *Sherryl A. Schultz*

Associate professor: *Richard J. Rozek*

Assistant professor: *Sherryl A. Schultz*

Adjunct assistant professors: *Klaus Blache, Stephen Song*

Adjunct instructors: *Frank M. Cleary, Daniel P. Glazier, Jane Meikle, Sarunas S. Mingela*

Industrial health and safety is a specialized branch of the health professions focusing on the environment of workers. Professionals in this field strive to find and eliminate conditions in the work place that may result in occupational injury or disease. This is achieved through a process of anticipation, recognition, evaluation and control of the various stresses that contribute to unsafe working environments. These stresses may be of a physical, chemical, biological or ergonomic nature.

The industrial health and safety program is multidisciplinary in nature, providing students with relevant exposure to basic science and behavioral science subjects as well as a thorough introduction to industrial hygiene and industrial safety concepts. A one-semester internship requirement provides students in the senior year of the program with first-hand field experience in the practice of this profession.

Graduates of the program will find employment opportunities within industrial firms, insurance companies, professional associations, local, state and federal government, and labor organizations.

Requirements for the Bachelor of Science Degree with a Major in Industrial Health and Safety

Students seeking the Bachelor of Science degree with a major in industrial health and safety must complete a minimum of 136 credits, including the following requirements:

1. Complete the writing proficiency requirement. In satisfying this requirement, students may need to complete (with grades of 2.0 or better) RHT 100 and RHT 101 (or their equivalent at another college or university). Not all credits associated with these courses will apply to the 136 credits required for the degree.
2. Meet the university general education requirements (see *Undergraduate degree requirements*). In completing the health science core curriculum, industrial health and safety majors will automatically satisfy the requirements in mathematics, logic and computer science, and in natural science and technology.
3. Complete the health science core curriculum. The biology sequence of BIO 200, 207 is preferred.
4. Complete BIO 205, CHM 203-204, MTH 141 and PHY 158 which complement the core curriculum.
5. Complete the major courses: HS 201; IHS courses numbered 301, 302, 304, 311, 312, 313, 320, 350, 352, 403, 430, 440; ENV 355.

6. Complete 14 credits of program perspective course work. Perspective courses may not be counted toward both the general education requirements and this requirement.
7. Complete all math and science prerequisite courses within the health science core curriculum and all industrial health and safety required IHS courses with grades of 2.0 or higher.

Industrial health and safety program perspective requirement

Program perspective courses are designed to give students greater insight into various aspects of industrial health and safety. Students must complete 14 credits from the list of courses below. Courses cannot be double counted toward both general education and the program perspective requirement.

AN 333, 392, 420
BIO 319, 325, 341
CHM 225
CSE 125
ECN 150, 309, 310, 326, 328, 338
ENV 308, 312, 372, 373, 390, 461, 484, 486
EXS 304
HBS 400
HST 302
IHS 351, 353
ORG 330
PS 350
PSY 100, 350, 351
SOC 100, 345, 357

Minor in environmental health

Industrial health and safety students can complete the program perspective requirement by completing a minor in environmental health. See the description of this minor in the College of Arts and Sciences section of the catalog.

Minor in industrial health and safety

A minor in industrial health and safety is available to students majoring in other programs, such as environmental health, general studies, engineering, biology or chemistry. Courses required for the minor include: IHS 301, 302, 304, 311, 312 and two of the following: IHS 313, 350, 351, 352, 353, 403.

Grade point policy

Industrial health and safety majors must achieve minimum course grades of 2.0 in science core prerequisite courses and in required IHS courses. A final course grade below 2.0 places a student on probation, which requires a meeting with the program director or his designated representative to discuss a method of remediation. In most cases, the method of remediation involves repeating the course in which the unsatisfactory grade was earned. See *Repeating courses* for additional information.

Course Offerings

IHS 301 Industrial Hygiene I (3)
A course concerned with the recognition of hazardous substances in the work place, methods to monitor them and the corrective measures necessary to control them.
Prerequisite: CHM 144 (or CHM 164).

IHS 302 Industrial Hygiene II (3)
Advanced methods of environmental testing. Focus on air contaminants in the work environment. Analysis of toxic fumes and gases, dusts, and fibers. Analytical techniques for laboratory and field applications.
Prerequisite: IHS 301, CHM 145 (or CHM 165), MTH 141 or 154.

IHS 304 Introduction to Epidemiology (3)
An introduction to the uses of epidemiology in public health practice, using selected diseases to illustrate the development of knowledge on disease causation and the application of such knowledge to disease control.
Prerequisite: IHS 302, STA 225 or 226.

IHS 311 Industrial Safety I (3)
Safety assessment for occupational environments. Analytical techniques, structural analysis, strength of materials, electrical safety, fire life-safety, medical management of injuries, personal protective clothing.

IHS 312 Industrial Safety II (3)
Introduction to concepts in security and protection of property, disaster response planning, hazardous materials handling during transport, and safety planning and management. Report preparation, writing, and oral presentations.
Prerequisite: IHS 311.

IHS 313 Fire Prevention and Protection (2)
Fundamentals of flame generation and propagation; fire behavior in open and confined spaces; theory of fire fighting methods, methods and devices for fire detection and suppression.
Prerequisite: IHS 302, IHS 312.

IHS 320 Industrial Hygiene Controls (3)
A course designed to study the various control methods (engineering, personal protective equipment and administrative) as they relate to the physical, chemical and toxic properties of air contaminants or energy interactions with humans.
Prerequisite: IHS 302, IHS 312.

IHS 350 Robotic Safety (2)
Information and issues related to worker safety in industrial environments where robots are used will be presented. The state-of-the-art of advanced automation will be surveyed with emphasis on system safety and injury prevention features required to assure an adequate worker/robot interface.
Prerequisite: IHS 302, IHS 312.

IHS 351 Industrial Ventilation (2)
Design and control applications for reducing worker exposure to airborne contaminants. Concepts and principles of dilution and local exhaust ventilation will be presented. Methods for assessment of industrial ventilation systems required to prevent the accumulation of flammable or explosive concentrations of gases, vapors, or dusts.
Prerequisite: IHS 302, IHS 312, MTH 141.

IHS 352 Industrial Noise Control (3)
Concepts in engineering controls required in the management of noise overexposure in industrial environments. Analysis of engineering design options and mechanical modifications effective in controlling worker exposure to undesirable industrial noise will be presented. Laboratory experience included to demonstrate principles of noise and its control.
Prerequisite: IHS 302, IHS 312.

IHS 353 Radiation Safety (2)
Safety aspects of occupational hazards associated with the use of ionizing radiation in industry will be presented. Methods for the identification, evaluation, and control of potential worker overexposure conditions will be reviewed. Biological effects of acute and chronic worker exposure will also be reviewed.
Prerequisite: IHS 302, IHS 312, PHY 102, PHY 158.

IHS 403 Industrial Toxicology (3)
Introduction to the basic concepts and techniques of toxicology with special attention given to industrial work environments. Evaluation of the effects of toxic substances on the human body. Focus on responses of various systems within the body to selected toxic agents.
Prerequisite: IHS 302, IHS 312, CHM 204, BIO 207.

IHS 404 Ergonomics (2)
Ergonomics and related change management concepts; anthropometry, biomechanics, metabolic energy expenditure, capabilities and limitations of workers; design and analysis of the workplace, hand tools, controls and products; application of the NIOSH lifting guidelines and other standards.

IHS 405 Special Topics (2, 3, or 4)
May be repeated for additional credit.
Prerequisite: Permission of instructor.

IHS 430 Environmental Standards (3)
Examines ambient and work place air, noise, radiation, water and pesticide standards. Topics will be analyzed in terms of standard development, enforcement at state and federal levels, and the validity of the standard's ability to protect health.
Prerequisite: IHS 302, IHS 312, PHY 102, PHY 158.

IHS 440 Advanced Industrial Health and Safety Internship (4)
Field training in industrial safety and health in close collaboration with professional industrial hygiene and safety personnel. Exposure to health and safety program planning and evaluation. Graded S/U.
Prerequisite: Advanced standing and departmental permission.

IHS 490 Independent Study (1, 2, 3 or 4)
Student initiated and problem-oriented independent study focusing on occupational health and safety issues. May be repeated for additional credit. Graded S/U.
Prerequisite: Departmental permission.

Medical Laboratory Sciences Program

Director: *J. Lynne Williams*

Associate professor: *J. Lynne Williams*

Visiting instructor: *Mary Ann Weller*

Clinical professors: *Jay Bernstein, John D. Crissman, Richard H. Walker*

Clinical associate professors: *Alireza Armin, Billy B. Baumann, William B. Fuqua, Barbara J. Jenkins, Raymond E. Karcher, Sudah Kini, John H. Libcke, Aaron Lupovitch, Boris K. Silberberg*

Clinical assistant professors: *Elena I. Dvorin, Michael M. Joh, Deanna Dupree Klosinski, Richard G. Soper*

Clinical instructors: *James Adams, Barbara J. Cahalan, Ellen Chapin, Harriet L. Cronin, Susan Dingler, Margaret M. Kluka, Ross R. Lavoie, Melanie Madercic, Joseph Roszka, Joyce Salancy, Carolyn A. Shalhoub, Deborah Thompson, Robert Weimer, Peggy Wenk*

Adjunct instructor: *Barbara M. Adams*

The medical laboratory sciences program is designed to prepare students for professional opportunities in a variety of settings. Graduates may find employment opportunities in hospital or commercial clinical laboratories, research facilities, biomedical industries (sales or service representatives, research and development, quality assurance) and public health centers/laboratories. In addition, the medical laboratory sciences curriculum meets basic requirements for entry into post-baccalaureate professional programs, including medicine, dentistry and osteopathy.

Medical laboratory scientists perform many routine and specialized laboratory tests for the purpose of developing data for the determination of the presence and extent of disease, as well as implications pertaining to the cause of disease. Laboratory science is a very diversified field. Many areas of specialization have evolved within the profession to ensure the expertise of individuals performing in clinical settings. Generally, employment in a hospital or community clinical laboratory requires certification in a specialization field. Professional certification is obtained by completing an accredited clinical internship program and satisfying other applicable licensure requirements, depending on the specialization.

The Oakland University program addresses each of the major laboratory science specializations, including cytotechnology, histotechnology, medical technology and nuclear medicine technology. Cytotechnologists and histotechnologists are involved in the diagnosis of disease based on cellular or tissue alterations. Medical technologists perform a wide range of diagnostic procedures, including chemical, microscopic, bacteriological and immunological procedures used in the diagnosis and study of disease. Nuclear medicine technologists utilize small amounts of radioactive materials for diagnostic evaluations of the anatomic or physiologic conditions of the body and to provide therapy with radioactive sources.

Students may be admitted as medical laboratory sciences majors directly from high school or by transfer from other colleges or universities. As described below *(Admission to clinical specializations)*, students have the option of completing the medical laboratory sciences degree by completing a hospital-based clinical internship specialization program in cytotechnology, histotechnology, medical technology or nuclear medicine technology during their senior year. Acceptance into these internship programs is selective and based on grades, personal interviews and letters of recommendation. Application for acceptance into a specialization internship program will occur either at the completion of the sophomore year or during the junior year depending on the specialization. The junior year curriculum will vary for students depending on the specialization followed.

Students not wishing to pursue professional certification or not selected in a clinical specialization internship program may complete the medical laboratory sciences degree by following the academic program for one of the medical laboratory sciences specializations and substituting adviser-approved electives for the clinical year (internship) course work. Such students will be eligible to reapply for clinical internship opportunities either before or after graduation, if desired.

Requirements for the B.S. degree with a major in medical laboratory sciences

Students seeking the Bachelor of Science degree with a major in medical laboratory sciences must complete a minimum of 136 credits, including the following requirements:

1. Complete the writing proficiency requirement. In satisfying this requirement, students may need to complete RHT 100 and RHT 101 (with grades of 2.0 or better), or their equivalents, at another college or university. Credits associated with these courses are not included in the 136 credits required for this degree.
2. Meet the university general education requirements (see *Undergraduate degree requirements*). In completing the health science core curriculum, medical laboratory sciences majors will automatically satisfy the requirements in mathematics, logic, and computer science and in natural science and technology.
3. Complete the health science core curriculum.
4. Complete BIO 322 or 206, CHM 149, CHM 203-204, MTH 121 or 141 and MLS 201, all of which complement the core curriculum.
5. Complete the major course requirements specified under one of the four medical laboratory sciences specializations (cytotechnology, histotechnology, medical technology or nuclear medicine technology).
6. Complete all medical laboratory sciences major program course work with a cumulative GPA of 2.50 or higher.

Admission to clinical specializations

To be accepted in a clinical specialization, students must complete appropriate application processes with individual (hospital based) accredited programs. Applications for the histotechnology, cytotechnology and nuclear medicine technology programs are processed in the spring semester following the sophomore year (or following completion of the health science core curriculum). Applications for medical technology clinical programs are processed during fall semester of the junior year. Students should have a 3.00 overall grade point average. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior year course work.

Grade point policy

Students must maintain a cumulative grade point average of 2.50 in all course work applied to the medical laboratory sciences major. Students in a specialization will be placed on probation if they earn a grade less than 2.0 in any course or if their cumulative grade point average in major course work falls below 2.50. Students who earn a second grade less than 2.0 must have their programs reviewed by the faculty to determine remediation or termination from the program.

In order to remove probationary status, students must raise their major grade point average to 2.50 or higher.

Specialization in cytotechnology

Director: *Sudah Kini*

A cytotechnologist is a trained medical laboratory technologist who detects cell disease by light microscopic examination of cell samples from all areas of the human body.

Students may be accepted into the cytotechnology specialization after completing the health science core curriculum, the courses that complement the core curriculum and the university general education requirements. In the junior year, students follow the prescribed academic program at Oakland University. The senior year consists of a 12-month internship at an approved hospital school of cytotechnology. The internship includes an integrated presentation of didactic material, microscopic study, specimen preparation, clinical observation, cytogenetics, laboratory management, and a research project.

Cytotechnology specialization course requirements

Students accepted into the cytotechnology specialization must complete the following courses: BIO 205, 305, 306, 307, 325, 326, 341, 393 and 423; MLS 312; and 28 credits in clinical courses, CT 401 and 402.

Specialization in histotechnology

Director: *Alireza Armin*

Histotechnologists perform a variety of diagnostic and research procedures in the anatomic sciences. Basic histologic techniques involve the processing and staining of tissue specimens that have been removed from humans or animals by biopsy or autopsy. Advanced techniques involve the use of the electron microscope, immunofluorescence microscopy, autoradiography, cytogenetics and medical photography.

Students may be accepted into the histotechnology specialization after completing the health science core curriculum and the university general education requirements. In the junior year, students follow the prescribed academic program at Oakland University. The senior year consists of a 12-month affiliation at William Beaumont Hospital School of Histotechnology.

Histotechnology specialization requirements

Students accepted into the histotechnology specialization must complete the following courses: BIO 205, 305, 306, 307, 325, 341, 423, 429 and 430; MLS 312; and 28 credits in clinical courses, HT 401, 402, 403 and 404.

Specialization in medical technology

Medical technologists perform a wide range of diagnostic procedures, including procedures in hematology, clinical chemistry, microbiology, serology, urinalysis and immunohematology (blood banking).

Students may be accepted into the medical technology specialization after completion of the health science core curriculum, the courses that complement the core curriculum and the university general education requirements. The junior year consists of the prescribed academic program at Oakland University and the senior year consists of a 9 or 12-month affiliation at an approved hospital school of medical technology. Upon completion of the internship, the student must pass a national certification examination to become a registered medical technologist.

Currently, the following hospitals are affiliated with Oakland University: Detroit Receiving Hospital, Detroit; Garden City Osteopathic Hospital, Garden City; Holy Cross Hospital, Detroit; Pontiac General Hospital, Pontiac; Providence Hospital, Southfield; St. John Hospital, Detroit; St. Joseph Hospital, Flint; and William Beaumont Hospital, Royal Oak. Internships have also been arranged with other Michigan hospital programs under individually approved agreements.

Oakland University is studying modifications of the medical technology program that would alter the curriculum to include four years of on-campus academic work followed by a shortened clinical rotation at an affiliated hospital. Students are encouraged to consult periodically with the School of Health Sciences academic adviser for information on these modifications.

Medical technology specialization requirements

Students accepted into the medical technology specialization must complete the following courses: BIO 325 (or CHM 453, 454), 365, 366, 421, 422, 423; MLS 313, 314, 316, 317, 326, 327, 328; and 28 credits in clinical courses, MT 415, 416, 418, 421, 423 and 428, or adviser-approved electives.

Specialization in nuclear medicine technology

Medical director: *Michael M. Joh*

Program coordinator: *Ellen Chapin*

Nuclear medicine technologists utilize small amounts of radioactive materials for diagnostic evaluations of the anatomic or physiologic conditions of the body and to provide therapy with radioactive sources.

Students are accepted into the nuclear medicine technology specialization after completion of the health science core curriculum, the courses that complement the core curriculum and the university general education requirements. The junior year consists of the prescribed academic program at Oakland University. The senior year consists of a 12-month affiliation at St. John Hospital School of Nuclear Medicine Technology.

Nuclear medicine technology specialization requirements

Students accepted for nuclear medicine technology major standing must complete the following courses: BIO 205, 206, 325, 423; PHY 158, 490 (radiation biology), PHL 318; HS 331, 401; MLS 210, 312, 325, 328; and 28 credits in clinical courses, NMT 401, 402.

Course Offerings

CYTOTECHNOLOGY

CT 401 Clinical Internship (14)

Microscopic study of cellular alterations indicative of cancer and precancerous conditions, bacterial, viral and parasitic infections, and hormonal abnormalities; cytogenetics; and a research project.

CT 402 Clinical Internship (14)
Continuation of CT 401.

HISTOTECHNOLOGY

HT 401 Basic Histotechnique and Histochemical Staining Methods (12)
Didactic and practicum experience in preparing histologic sections for light microscopy, including the study of over 50 different histologic staining methods and their specific applications.

HT 402 Basic Electron Microscopy (8)
Didactic and practicum experience in basic biological electron microscopy. Electron microscopic histochemistry and special techniques are also covered. Emphasis is on the electron microscope as a medical diagnostic tool.

HT 403 Immunohisto-cytochemistry (4)
A course designed to teach basic and advanced procedures of fluorescent and enzyme-labeled antibody techniques. The course includes the preparation of tissues, staining with labeled antibodies and the use of the fluorescence microscope in clinical medicine and research.

HT 404 Cytogenetics (4)
An intensive course in human cytogenetics. Human chromosome methodology, chromosome identification and chromosomal abnormalties and their application in clinical medicine.

MEDICAL LABORATORY SCIENCES

MLS 201 Careers in Medical Laboratory Sciences (0)
An introductory seminar in medical laboratory sciences, including career opportunities in clinical settings (medical technology, histotechnology, cytotechnology, nuclear medicine technology, industrial sales and/or research and development, basic medical research, and education).

MLS 210 Medical Terminology (1)
This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms. Graded S/U.

MLS 312 Hematology/Cellular Pathophysiology (3)
Topics include current concepts of hematopoiesis, including selected topics in red blood cell, white blood cell, and platelet morphogenesis, physiology and pathophysiology; an introduction to the basic principles involved in cellular disease mechanisms.
Prerequisite: BIO 207 or 321; permission of instructor.

MLS 313 Immunohematology (3)
Discussion of the immunologic and genetic basis for the study of red cell antigen/antibody systems, including physiologic and pathophysiologic consequences of foreign antigen exposure. Laboratory included.
Prerequisite: BIO 207 or 321; permission of instructor.

MLS 314 Hemostasis (3)
In depth study of the basic physiology and pathophysiology of the human hemostatic system. Laboratory included.
Prerequisite: BIO 207 or 321; permission of instructor.

MLS 316 Medical Hematology (4)
Theory and techniques in hematology, including red blood cell, white blood cell and platelet morphogenesis, physiology, and pathophysiology.
Prerequisite: BIO 207 or 321; permission of instructor.

MLS 317 Hematology Laboratory (1)
To accompany MLS 316.
Prerequisite: Permission of instructor.

MLS 325 Special Topics in Instrumentation and Clinical Analysis (1)
An introduction to theoretical and practical aspects of instrumentation and clinical analysis applicable to nuclear medicine technology. Laboratory included.
Prerequisite: Specialization in nuclear medicine technology.

MLS 326 Instrumentation and Clinical Analysis (3)
An introduction to theoretical and practical aspects of instrumentation and clinical analysis. Includes practical experience in the calibration, operation, and preventive maintenance of laboratory instruments. Laboratory included.
Prerequisite: Permission of instructor.

MLS 327 Clinical Chemistry (3)
A theoretical introduction to the fundamentals of clinical chemistry with emphasis on pathophysiology and clinical correlations.
Prerequisite: BIO 325.

MLS 328 Clinical Chemistry Laboratory (1)
Provides practical experience in the application of clinical instrumentation and current clinical methodologies to the performance of clinical chemistry assays.
Prerequisite: Successful completion of MLS 326 with grade of 2.0 or better.

MLS 405 Special Topics (1, 2, 3 or 4)
May be repeated for additional credit.
Prerequisite: Permission of instructor.

MLS 451 Clinical Education (6)
Prerequisite: Permission of instructor.

MLS 490 Individual Laboratory Work (2, 3, 4)
May be repeated for additional credit.
Prerequisite: Permission of instructor.

MLS 497 Apprentice College Teaching (2)
Directed teaching of selected undergraduate courses. May be repeated for a maximum of 4 credits. Graded S/U.
Prerequisite: Permission of instructor.

MEDICAL TECHNOLOGY

MT 415 Clinical Practicum — Urinalysis/Coagulation (3)
Didactic and practicum experience at an affiliated hospital school of medical technology, in the fields of urinalysis and coagulation.
Prerequisite: Permission of instructor.

MT 416 Clinical Practicum — Hematology (5)
Didactic and practicum experience at an affiliated hospital school of medical technology, in the area of hematology.
Prerequisite: Permission of instructor.

MT 418 Clinical Practicum — Immunohematology (4)
Didactic and practicum experience at an affiliated hospital school of medical technology, in the field of immunohematology.
Prerequisite: Permission of instructor.

MT 421 Clinical Practicum — Microbiology (7)
Didactic and practicum experience at an affiliated hospital school of medical technology, in the field of medical microbiology, including parasitology and mycology.
Prerequisite: Permission of instructor.

MT 423 Clinical Practicum — Serology (2)
Didactic and practicum experience at an affiliated hospital school of medical technology, in the field of serology.
Prerequisite: Permission of instructor.

MT 428 Clinical Practicum — Chemistry (7)
Didactic and practicum experience at an affiliated hospital school of medical technology, in the field of clinical chemistry.
Prerequisite: Permission of instructor.

NUCLEAR MEDICINE TECHNOLOGY

NMT 401 Clinical Internship I (14)
Didactic and clinical experience in clinical nuclear medicine including instrumentation, radiopharmacy, ligand assay, organ imaging and therapy with radionuclides.

NMT 402 Clinical Internship II (14)
Continuation of NMT 401.

Physical Therapy Program

Director: *Jane M. Walter*

Associate professors: *Osa Jackson, Jane M. Walter*

Assistant professor: *Kornelia Kulig*

Special instructors: *Faye M. Cobb, Christine Pillow, Kristine A. Thompson*

Clinical professors: *A. Charles Dorando, Freddy M. Kaltenborn, Clarence B. Vaughn*

Clinical associate professor: *Allen Silbergleit*

Clinical assistant professors: *Allen L. Babcock, Jack E. Belen, Peter M. Boruta, Dale V. Hoekstra, Frank Kava, Kristie S. Kava, Michael R. Lubetsky, Frederick P. Maibauer, Ricky E. Olson, Kanamarlapudi Rao*

Senior clinical instructor: *Cathy Larson*

Clinical instructors: *Michael R. Beauvais, Reyna T. de Blumentritt, Henry D. Boutros, David K. Gilboe, Philip H. Keila, Kathleen Jakubiak Kovacek, Peter R. Kovacek, James C. Pipp, Linda M. Pipp, Marilyn J. Raymond, Daniel A. Selahowski, Dorothy J. Smith, Lasse Thue, Kenneth M. Woodward*

General Information

The physical therapy program prepares students for the master of physical therapy degree and professional careers in physical therapy. The program builds upon the liberal arts, reinforcing the role of the physical therapist as an actively contributing member of society and a rational and morally sensitive professional. The program is accredited by the Commission on Physical Therapy Education, a body which is given its accreditation authority by the Council on Post-secondary Accreditation (COPA) and the Department of Education (DOE).

Physical therapists are concerned with the prevention and treatment of acute and chronic conditions which cause disorders of movement. Physical therapists evaluate the musculoskeletal, neuromuscular, cardiopulmonary, and associated systems, drawing on the basic sciences (biology, chemistry and physics) and the behavioral sciences (psychology) for their interpretations. Patient programs are then developed to resolve movement dysfunctions. Physical therapists work in concert with all members of the health care team through a variety of referral relationships.

Admission

Entry into the physical therapy program is competitive, and is contingent upon satisfactory completion of the health science core curriculum, required courses complementing the core curriculum, and the university general education requirement. Acceptance is based on academic performance, letters of recommendation, exposure to the profession, personal interviews and Allied Health Professions Admissions Test scores. Application to the physical therapy program typically occurs in the winter semester of the sophomore year and may be initiated by Oakland University students or by students transferring from other institutions. Transfer students must demonstrate completion of a pre-professional curriculum equivalent to Oakland University's in terms of both content and semester hour total (75 semester hour credits). Transfer students are reminded that a maximum of 62 semester hour credits are transferable from a community or junior college (see *Transfer student information*). Preference will be given to students who have completed a majority of their credits at Oakland University.

Program description

Students accepted into the physical therapy professional program are required to complete the Bachelor of Science in health sciences degree as outlined in this section, followed by a graduate level curriculum which culminates in the awarding of the Master of Physical Therapy degree. The Bachelor of Science in health sciences is awarded when a minimum of 138 semester hours have been earned. This degree is a reflection of academic achievement but does not allow the student to practice physical therapy. The Master of Physical Therapy is awarded upon completion of a minimum of 49 additional semester hours of graduate level course work. This degree allows the graduate to apply to sit for the professional licensure examination. The duration of the professional program is three years for full-time students. Students who already hold a bachelor's degree are not required to earn a second degree. However, such students must still complete the preprofessional core requirements prior to admission to the professional program and all professional course requirements prior to receiving the master's degree.

A description of the 49 semester hours of graduate level course work required to complete the physical therapy program and earn the Master of Physical Therapy degree is provided in the *Oakland University Graduate Catalog.*

Requirements for the B.S. degree with a major in health sciences

Students seeking the Bachelor of Science degree with a major in health sciences must complete a minimum of 138 credits, including the following requirements:

1. Complete the writing proficiency requirement. In satisfying this requirement, students may need to complete RHT 100 and RHT 101 (with grades of 2.0 or better) or their equivalent at another college or university. Not all credits associated with these courses will apply to the 138 credits required for this degree.
2. Meet the university general education requirements (see *Undergraduate degree requirements*). In completing the health science core curriculum and major program requirements, physical therapy majors will automatically satisfy the requirements in mathematics, logic and computer science, in natural science and technology, and in social science.
3. Complete the health science core curriculum.
4. Complete BIO 322, MTH 141, MTH 122 or 154, PHY 158, PSY 100 or 130, and PSY 331, all of which complement the core curriculum.
5. Be admitted to major standing in the professional program.
6. Complete the major program as follows: BIO 381 and 460; EXS 304; HS 324, 331, 391, and 401; PHY 325; PT 300, 311, 330, 331, 332, 333, 334, 340, 351, 370, 420, 442, 452, and 460.

Grade point policy

A 3.00 grade point average for all course work taken in the professional program is required for graduation. Progress toward this requirement during the three-year professional program will be monitored, with probation, suspension or dismissal from the program as possible consequences of not meeting the following criteria:

1. A minimum semester GPA of 2.70 must be achieved for each and every semester enrolled in the program. Students receiving a semester GPA of less than 2.70 during enrollment in the program will be placed on probation. For purposes of this policy, the spring/summer terms of the first year will count as one semester. Students receiving a semester GPA of less than 2.70 more than once during enrollment in the professional program are subject to suspension from the program for a period of one year.
2. A minimum course grade of 2.0 must be achieved for each required course in the program. Students receiving one course grade below 2.0 during any semester are subject to probation or suspension from the program. Suspension involves temporary ineligibility to take additional major course work until such time as the course(s) completed unsatisfactorily or their equivalent are again offered and are satisfactorily completed. This period is typically one year.

3. Students are subject to dismissal from the program as a result of any one of the following conditions: receipt of two course grades below 2.0 during completion of the professional program, being subject to probation more than twice or to suspension more than once. Once dismissed, students may not reenter the physical therapy program.
4. Students will be informed of all probation, suspension and dismissal decisions in writing, including the grounds for the decision, a time frame for probation/suspension, and any remedial work or repeat course work that must be completed prior to continuing in the program.
5. All decisions regarding the imposition of probation, suspension or dismissal, any remedial work to be completed and the removal of probation or suspension will be made by the Physical Therapy Honors and Promotion Committee. Appeals of Physical Therapy Honors and Promotion Committee decisions may be made to the dean of the School of Health Sciences. The dean's decision shall be final. For additional information on general university policies on repeats, see *Repeating courses*.

Code of ethics

Since ethical conduct is critical to a health profession, students are required to abide by the Code of Ethics and Guide for Professional Conduct, published by the American Physical Therapy Association. Violations will be reviewed by the Physical Therapy Honors and Promotion Committee and could result in dismissal from the program.

Course Offerings

PT 300 Kinesiology (3)
Study of selected anatomical, structural and functional properties of human muscular, skeletal and connective tissue structure. Normal human movement is emphasized to develop a base of knowledge for clinical assessment and treatment. Laboratories in surface anatomy and gait analysis are included. Abnormalities and physical dysfunctions are discussed on a limited basis.

PT 311 Biomechanics (3)
The study of mechanical principles of human movement and its analysis. Anthropometry, muscle mechanics, mechanics of materials, and coordination are studied. Instrumentation for kinetic and kinematic evaluation of human motion are presented. Advanced gait analysis is included.

PT 330 Introduction to Patient Care (3)
Theory and practice of basic therapeutic techniques utilized in physical therapy. Modules include: professional orientation, patient records, gait training, transfer training, wheelchair management, assistive device prescription, range of motion, history taking and massage. All of these aspects will be integrated into a problem solving/case study approach.

PT 331 Evaluation Procedures I (2)
Basic principles and techniques of evaluation procedures used in physical therapy. Lecture, laboratory, demonstration, discussion and clinical site visits will be used to teach students principles and techniques of palpation, manual muscle testing, goniometry, anthropometric measurement, posture and gait analysis, and vital signs.

PT 332 Physical Agents (3)
Lecture/laboratory focusing on the principles and procedures for using physical agents. Modules focus on superficial and deep heat, cryotherapy, infrared, ultraviolet, hydrotherapy, compression garments and traction.

PT 333 Clinical Medicine and Physical Therapy (4)
Lecture/discussion covering the etiology, pathology, symptomatology, treatment and prognosis of patient disorders associated with the medical specialty areas covered in this course, which include: cardiopulmonary, oncology, burn care, orthopedics, rheumatology and neuromuscular diseases.

PT 334 Evaluation Procedures II (4)
Study of basic evaluation principles and procedures for the patient with musculoskeletal and neuromuscular problems.

PT 340 Personal Movement Analysis I (1)
Systematic exploration of movement habits/options based on the sensorimotor integration of the individual student. Self-exploration of facilitation techniques that enhance sensorimotor integration will be explored. Effects of cognitive, affective and psychomotor factors on movement will be considered.

PT 351 Clinical Education I (1)
Orientation to clinical education including the practice of basic patient evaluation through supervised experience in the clinical environment.

PT 370 Therapeutic Exercise (4)
Introduction to principles and techniques of therapeutic exercise. Students will begin to formulate treatment programs to resolve patient problems and foster awareness of the ramifications of these procedures on the client and his/her life.

PT 420 Neurophysiology and Clinical Neuroscience (3)
Integration of neuroanatomy and neurophysiology as it forms a rationale for patient evaluation and treatment planning. Special emphasis is given to neurophysiology/neuroanatomy rationale related to neuromuscular and skeletal dysfunctions. Lecture, laboratory and practical experiences.

PT 442 Emotional Aspects of Patient-Therapist Interaction (2)
Study of the various factors impinging upon the patient, the family or meaningful others, other members of the medical team and ultimately the patient-therapist relationship and what the physical therapist needs to consider when interacting with the patient or family or meaningful others.

PT 452 Clinical Education II (2)
Clinical education including advanced patient evaluation and initiation of treatment planning and implementation under direct supervision in the clinical environment.

PT 460 Physical Therapy and the Human Life Cycle I: Infancy through Adolescence (3)
Examines the human developmental progression from conception up to and including adolescence and the special physical therapy adaptations that are required at each stage of development. Course format is varied with discussion, demonstration, lectures, small group activities, field observations and patient assessment.

SCHOOL OF NURSING

434 O'DOWD HALL (313) 370-4071

Interim Dean: *Penny S. Cass*

Office of the Dean: *W. W. Kent, assistant to the dean; Sue Lindberg, coordinator, academic advising; Linda Wright, adviser*

Associate professors: *Penny S. Cass, Gary Moore, Carol Zenas*

Assistant professors: *Melinda G. Beaudry, Janice E. Fries, Rita Munley Gallagher, Frances C. Jackson, Mary A. Johnson, Patricia Ketcham, Norman Kloosterman, Anahid Kulwicki, Mary E. Mittelstaedt, Nancy O'Connor, Clementine Rice, Darlene Schott-Baer, Diane Wilson*

Special instructors: *Virginia R. Hosbach, Ramune Mikaila, Jean Mohan*

Visiting assistant professor: *Joann Richards*

Visiting instructors: *Jane Lukacs, Linda Munro, Mary Ruhana, Suzanne Skowronski*

Lecturers: *Jesse E. Bateau, Joan E. Blakley, Caroljo T. Catron, Martha A. Gotshall, Nancy J. Hauff, Mary Jane Heaney, Frances E. Jurack, Michelle A. Kluka, Carmon V. Nicholson-Weekes, Elizabeth C. Patterson, Jean E. Postma, Mary Swingle, Nancy C. Thompson, Catherine Vincent, Joan E. Woodhead*

Adjunct professors: *Clara Adams-Ender, Karen S. Ehrat, Shahrokh Mansoori*

Adjunct associate professor: *Joanne Napiewocki*

Adjunct assistant professor: *Alice Joan Schmidt*

Adjunct instructors: *Kathy Geering, Barbara S. Lloyd, Cynthia Osborn, Cynthia Petrack, Gary Plagens, Deborah Rusert, Stephen Tackitt, Lenora Ward, Mary Lou Wesley*

Board of Visitors

The Board of Visitors for the School of Nursing is composed of community leaders in the greater Detroit area. It assists the school in developing goals and objectives, curricula design, and clinical and research programs to meet the rapidly changing and expanding requirements of the health care field. Board members are available individually or collectively for consultation on such matters as facilities, equipment requirements, special topics and long-range planning. Members of the Board of Visitors are:

Maggie Allesee, Birmingham, Michigan
Ernest W. Baker, Chairperson, DDB Needham
David Benfer, Executive Vice President, Henry Ford Hospital
Glenn Betts, Representative, United Auto Workers
Donald J. Bortz, Jr., President, Bortz Health Care Corporation
Charles L. Crissman, Manager, Crissman Lincoln/Mercury Sales & Leasing
Alan S. Funk, Executive Vice President, Jewish Home for the Aged
Joseph F. Galvin, Attorney, Miller, Canfield, Paddock & Stone
Betty Gerisch, R.N., Bloomfield Hills, Michigan
Dorothy Hanna, R.N., Associate Hospital Director, William Beaumont Hospital, Royal Oak
Ruth Huebner, Rochester, Michigan
Robert Hutton, Grosse Pointe Park, Michigan, Honorary Member
Harold C. L. Jackson, Jr., Manager, General Publicity, General Motors Corporation

Kathleen M. Korbelak, Vice President Nursing Services, Saint John Hospital and Medical Center
Richard Prior, M.D., Honorary Member
Boris G. Sellers, Executive Director, The Beaumont Foundation
Robert Shapiro, Vice President for Pharmacy Services, Perry Drug Stores
Terry Treiber, Birmingham, Michigan
William R. Yaw, Jr., Senior Vice President, Standard Federal Bank

Programs Offered

Undergraduate Program

The School of Nursing offers instruction leading to the Bachelor of Science in Nursing (BSN). The course of study combines general education in the humanities and the social, biological and natural sciences with education in the theory and practice of nursing. Graduates qualify for employment as professional nurses in a variety of settings. A registered nurse sequence is provided for RN students who wish to earn the BSN.

The purposes of the program are to:

1. Provide a program of quality baccalaureate nursing education grounded on a firm foundation in the liberal arts and sciences.
2. Prepare a generalist nurse for entry into professional practice.
3. Foster professional role development and commitment to continued personal and professional growth.
4. Prepare a graduate to take the licensure examination of the State Board of Nursing.
5. Prepare a graduate for application to graduate school.

Graduate Program

The School of Nursing offers a program leading to the Master of Science in Nursing (MSN). This program prepares nurses for advanced nursing practice in nursing administration, nurse anesthesia, or adult health nursing. For more information, see the *Oakland University Graduate Catalog.*

Admission

The prenursing year

Students wishing to enter prenursing should have completed two years of high school mathematics, including algebra; one year of college preparatory biology; and one year of chemistry, with a grade of 2.8 or better in each. A cumulative average of 2.80 or better is required for admission. See the *Admissions* section for additional information.

During the prenursing year, students take introductory courses in the natural and social sciences and the humanities. The following courses are required for admission to the nursing program:

CHM 104	Introduction to Chemical Principles (4)
CHM 201	Introduction to Organic and Biological Chemistry (4)
BIO 200	Biology (4)
RHT 100	Composition I (4)
RHT 101	Composition II (4)
PSY 100	Foundations of Contemporary Psychology or
or 130	Psychology and Society (4)
PSY 270	Lifespan Developmental Psychology (4)

Admission to the School of Nursing

Application for admission to the nursing program occurs during the winter semester. To be considered for admission a student must complete all required prenursing courses with a cumulative grade point average of 3.00, and earn a minimum grade of 2.0 in each prenursing course. Calculation of the grade point average is based on all prenursing courses whether taken at Oakland University or another institution. Completion of minimum requirements does not guarantee admission. Positions are filled with applicants best qualified to succeed in the nursing program. Preference is given to students who have completed a majority of their prenursing credits at Oakland University. The School of Nursing encourages and actively seeks male and minority applicants. In addition, admission to the nursing program beginning at the sophomore year, is contingent upon:

1. Submission of a completed health history and physical examination, including inoculation for tetanus, skin testing for tuberculosis (possible chest x-ray), rubella titer, and correction of any correctable physical limitations (at the student's expense).
2. Obtaining malpractice insurance of at least $1,000,000 coverage for the sophomore, junior and senior years (at the student's expense).
3. Completion of an approved Heartsaver or BCLS/BLS class within the last year.

All of the required information must be submitted to the School of Nursing by specified deadlines.

Advising

The School of Nursing advising office is located in 449 O'Dowd Hall (370-4073). All students should schedule an advising appointment during the prenursing year to review degree requirements. In addition, students are required to attend a School of Nursing orientation prior to registration for nursing courses. A plan of study for each student is completed at the orientation. The plan of study is a timetable of courses to be taken and assures progress toward satisfying degree requirements.

Transfer policy

Programs offered by the School of Nursing are designed to meet National League for Nursing accreditation criteria as well as to reflect the Oakland University philosophy of education. Thus, the program is more than a mere assemblage of courses. Records of students transferring to Oakland University from other academic institutions are evaluated and transfer credit is granted as appropriate. Once matriculated at Oakland, students are expected to complete all remaining course work for the degree at Oakland. Exceptions that permit taking courses at another institution must have the prior consent of the School of Nursing Committee on Instruction. **A student who has completed 62 semester hours of credit from any accredited institution(s), including Oakland University, may not transfer additional credits from a community or junior college.** See *Transfer student information* for additional information.

Requirements for the Bachelor of Science in Nursing Degree

To earn the Bachelor of Science in Nursing degree, students must complete a minimum of 125 credits and meet the following requirements:

1. Complete the writing proficiency requirement.
2. Complete all credits and courses prescribed in the degree curriculum, including: 32 credits in general education (see *Undergraduate degree requirements*); 60 credits in the nursing component; and 25 credits in the humanities and the social and natural sciences as prescribed by the School of Nursing.
3. Maintain a cumulative grade point average of at least 2.50 in all nursing courses.
4. Complete at least 32 credits at the 300-level or above.
5. Be in compliance with all legal regulations of the School of Nursing.

Standard Program Plan

Fall			Winter		
Prenursing			**Prenursing**		
*CHM 104	Introduction to Chemistry	(4)	*RHT 101	Composition II	(4)
*RHT 100	Composition I	(4)	*BIO 200	Biology	(4)
*PSY 100	Foundations of Contemporary Psychology	(4)	*CHM 201	Organic and Biological Chemistry	(4)
OR			*PSY 270	Lifespan Developmental Psychology	(4)
PSY 130	Psychology & Society				
General Education		(4)			
Sophomore			**Sophomore**		
NRS 205	Health Assessment	(2)	NRS 234	Introduction to Professional Nursing II	(6)
NRS 223	Introduction to Professional Nursing I	(6)	NRS 230	Pharmacology in Professional Nursing	(2)
NRS 225	Effective Communication	(2)	BIO 207	Human Physiology	(4)
BIO 205	Human Anatomy	(4)	BIO 307	Medical Microbiology	(4)
BIO 206	Human Anatomy Lab	(1)			
Junior			**Junior**		
NRS 322	Pathophysiology	(3)	NRS 323	Nursing Care of Children	(4)
NRS 333	Emotional Disorders	(4)	NRS 334	Emerging Family	(4)
NRS 324	Nursing Care of Adults I	(4)	NRS 325	(continued)	
NRS 325	Learning Resource Lab	(1)	General Education		(4)
General Education		(4)	General Education		(4)
Senior			**Senior**		
NRS 420	Professional Nursing in the Community	(8)	NRS 430	Leadership	(3)
NRS 422	Nursing Research	(3)	NRS 434	Nursing Care of Adults II	(3)
General Education		(4)	NRS 436	Practicum	(5)
			General Education		(4)

Total: 125 credits

NOTE: MTH 011 (Elementary Algebra) is a corequisite to CHM 104. MTH 012 (Intermediate Algebra) is a prerequisite to some general education courses in the mathematics, logic and computer science category. Credits for MTH 011/012 do not apply to the B.S.N.

*Courses required for admission to the nursing program.

Annual requirements

Each year students in the nursing program must supply written validation of:

1. Skin testing for tuberculosis and/or chest x-ray.
2. Malpractice insurance of at least $1,000,000 coverage.
3. Completion of an approved Heartsaver or BCLS/BLS (CPR) class.

Students who have not submitted all of the above items prior to beginning clinical experiences will be excluded from clinical agencies until they have met all the above requirements.

Course sequencing

The nursing curriculum is developed based upon full-time study. Students who complete non-nursing courses prior to entering the program may have a lighter course load, but will not complete the program earlier.

Students must complete all designated course requirements for each level in the nursing program before progressing to the next level. Students who are ineligible to progress are placed on inactive status. Their return to the program is contingent upon availability of space. Students who return to the nursing program from inactive status must comply with all School of Nursing policies currently in effect.

Clinical placements

Nursing students are placed in clinical settings each semester. These clinical experiences provide students with opportunities to apply theory to practice in caring for individuals, families or groups.

Cooperating agencies are located throughout the metropolitan Detroit area. Students are responsible for providing their own transportation to and from the clinical agency. Students must have access to their own car for community health clinical placements in the senior year.

Academic standing policy

Grade point policy

Each student's program progress will be reviewed at the end of each nursing course. The periods between reviews are grading periods. Grades are either numerical or S/U (satisfactory/unsatisfactory) as specified for the course. The term grade means:

1. an overall grade for a course, or
2. either a clinical grade or a theory grade, when a course contains both components (the component grade).

Probation/termination

1. In courses or course components graded numerically, a student assigned a course or component grade below 2.5 is automatically placed on probation. A student assigned a course or component grade below 2.0 is subject to academic dismissal from the program. In the latter case, the school may impose a remediation program while probation continues or may immediately terminate the student from the nursing program. A student on probation who in the next grading period has no nursing grade(s) of unsatisfactory (U) or below 2.5 will be removed from probation if this is consistent with any remediation program imposed. A student on probation, who in the next grading period has a grade or grades of unsatisfactory or below 2.5, may be immediately terminated from the nursing program or may have a remediation program imposed while probation continues, as the school shall determine.
2. In courses or course components graded satisfactory/unsatisfactory (S/U), a student assigned a course or component grade of unsatisfactory (U) is automatically placed on probation. The school may impose a remediation program while probation continues. A student on probation who, in the next grading period, has no nursing grade(s) of U or below 2.5 will be removed from probation if this is consistent with any remediation program imposed. A student on probation who, in the next grading period, has a grade or grades of U or below 2.5 may be immediately terminated from the nursing program or may have a remediation program imposed while probation continues, as the school shall determine.
3. A student must maintain a G.P.A. of at least 2.50 in all nursing courses to remain in good academic standing. If a student's nursing G.P.A. falls below 2.50, the student is automatically placed on probation. If a student increases the nursing G.P.A. to at least 2.50 within the next two grading periods, the student will be removed from probation. If not, the school may impose a remediation program while probation continues or immediately terminate the student from the nursing program.
4. A student who earns course or component grades of unsatisfactory or below 2.5 in two nursing courses within the same grading period may be immediately terminated from the nursing program or may have a remediation program imposed while on probation, as the school shall determine.
5. A student who is placed on probation by the School of Nursing more than one time may be immediately terminated from the nursing program or may have a remediation program imposed while on probation, as the school shall determine.

Eligibility for graduation

In addition to satisfying other stated requirements, to be recommended for graduation:

1. A student must be in good academic standing (non-probationary).
2. A student must have a cumulative G.P.A. of at least 2.50 in nursing courses.
3. A student must have a grade of at least 2.0 in all required non-nursing courses.

A student placed on probation at the expected time of graduation may have a remediation program imposed as the school shall determine.

Degree completion sequence for registered nurses

The School of Nursing offers registered nurses an opportunity to earn a Bachelor of Science in Nursing. The purposes, philosophy and objectives of the B.S.N. program are the same for basic and registered nurse students. However, flexible teaching methodologies take into account the professional and life experiences of R.N. students. The first course in the nursing sequence is NRS 222, specifically designed as a transition course for registered nurses.

Students who have satisfactorily completed a diploma or associate degree program in nursing and who possess a valid Michigan R.N. license may apply for admission to the B.S.N. program. Registered nurses must complete all credits and/or courses in the degree program.

Completion may be achieved in several ways, including:

1. CLEP (College Level Examination Program) credit, National League for Nursing achievement tests and ACT Proficiency Examination Program (PEP) credit. Academic credit may be granted in courses for what students know, regardless of where or how they acquired the knowledge.
2. Transfer of credits. The School of Nursing evaluates previous course work to determine equivalency.
3. Credit by examination at Oakland University. Registered nurses may demonstrate competency by passing competency examinations, except as noted below.
4. Required course enrollment. When course requirements cannot be fulfilled by the above methods, R.N. students must enroll and successfully complete courses. All R.N. students are required to enroll in NRS 222, NRS 420, NRS 422, NRS 430 and NRS 436.

This program is designed to allow students to proceed at their own pace.

Additional Information

Accreditation and program review

The Oakland University School of Nursing is accredited by the National League for Nursing and has approval from the Michigan State Board of Nursing.

Sigma Theta Tau

Theta Psi, the local chapter of Sigma Theta Tau International Honor Society in Nursing, was chartered in April 1986 at Oakland University. Candidates for membership are selected on the basis of superior scholastic achievement and evidence of professional leadership potential.

National Student Nurses' Association

Prenursing and nursing students are eligible and encouraged to become members of the National Student Nurses' Association. NSNA is the mechanism through which students participate in planning and formulating policies related to the School of Nursing.

Qualification for R.N. licensure

Licensure is obtained through satisfactory performance on the licensing examination prescribed by the State of Michigan. Upon registration of the license, a nurse is known as a registered nurse (R.N.). Licensure in one state entitles a qualified holder to seek licensure by endorsement in other states.

Applicants who have been convicted of charges other than minor traffic violations may be denied a license to practice nursing.

Course Offerings

Nursing courses may include student learning experiences in the classroom, learning resource laboratory, and clinical agencies in the community. Admission to the nursing program is required for enrollment in any required nursing course.

NRS 205 Health Assessment (2)
Introduces students to the process of health assessment. Emphasis is on multidimensional assessment and techniques for communicating data collected to other health personnel.
Corequisite: BIO 205 and 206, and NRS 223.

NRS 222 Transition to Professional Nursing (5)
Introduces framework of nursing curriculum, including the concepts of man, environment, health and nursing. Opportunity for the demonstration of clinical competency. For registered nurses only.

NRS 223 Introduction to Professional Nursing I (6)
Introduces framework of nursing curriculum, including the concepts of man, environment, health and nursing. Basic nursing skills are applied to the care of healthy clients.

NRS 225 Effective Communication in Clinical Practice (2)
Focus on effective communication as the basis for implementing the nursing process. Initiates development of skills in deliberative communication, and presents behavioral theory related to successful application of communication skills in both non-clinical and clinical interpersonal encounters.

NRS 230 Pharmacology in Professional Nursing (2)
Focuses on basic concepts of pharmacology and their application in the clinical setting.
Corequisite: BIO 207.

NRS 234 Introduction to Professional Nursing II (6)
Continuation of NRS 223. Examines general principles involved in care of clients experiencing common health deviations. Gordon's Functional Health Framework is utilized as the basis for the assessment, planning, implementation and evaluation of nursing care to assigned clients.
Prerequisite: BIO 205 and 206, and NRS 205.
Corequisite: NRS 230.

NRS 322 Pathophysiology (3)
Examines how physiological functions are modified by disease processes.
Prerequisite: Completion of all sophomore level courses.

NRS 323 Nursing Care of Children (4)
Implications of variables related to health and illness in children. Emphasis is on the interaction of biological responses to stressors from birth through adolescence. Study provides the base for expanding competence in nursing skills centering on care function and more sophisticated application of nursing process with clients in various clinical settings.
Prerequisite: Completion of all sophomore level courses.
Corequisite: NRS 325.

NRS 324 Nursing Care of Adults I (4)
Explores the effect of variables related to health and illness in the adult. Emphasis is on the interaction of biological responses to stressors in the adult life cycle. Study provides the base for expanding competence in nursing skills centering on care functions and more sophisticated application of nursing process with clients in acute care clinical settings.
Prerequisite: Completion of all sophomore level courses.
Corequisite: NRS 325.

NRS 325 Learning Resource Lab (1-2)
Practice and validation of selected nursing care skills in the learning resource laboratory.
Prerequisite: Completion of all sophomore level courses.

NRS 333 Nursing Care of Clients with Emotional Disorders (4)
Study focuses on the care of clients in psychiatric settings. Includes exploration of variables affecting the development of psychopathology and emphasizes the development of nursing interventions to provide care for patients experiencing psychiatric problems.
Prerequisite: Completion of all sophomore level courses.
Corequisite: NRS 325.

NRS 334 Nursing Care of the Emerging Family (4)
Experience in the care of families throughout the childbearing cycle. Emphasis is on the care of mothers and infants in the labor room, delivery and post partum settings. Focus is on variables contributing to a healthy pregnancy, normal delivery and positive transition to parenthood.
Prerequisite: Completion of all sophomore level courses.
Corequisite: NRS 325.

NRS 360 Advanced Care of the Adult-Extern (4-6)
Provides precepted theoretical and clinical practice and classroom instruction in an acute care setting, working with an adult population.
Prerequisite: Completion of all junior level courses.

NRS 380 Understanding AIDS in the Community (4)
This multidisciplinary course provides a comprehensive introduction to the major concepts in the study of Acquired Immune Deficiency Syndrome (AIDS) including its prevention, transmission and effect on a variety of groups. Epidemiological, methodological, legal and ethical issues are explored.

NRS 420 Professional Nursing in the Community (8)
Exploration of the functions of the community health nurse with the individual, the family and the community. Emphasis is on analysis of client adaptation to environmental stressors, nursing actions directed toward prevention of illness, restoration, maintenance and promotion of public health, and collaboration with others in the community to achieve mutual goals.
Prerequisite: Completion of all junior level courses.

NRS 422 Nursing Research (3)
A broad overview of the research process in nursing. Includes content related to nursing theory, research design, and data analysis strategies. Major emphasis is on the use of research concepts for the purpose of evaluating relevant research for use in nursing practice.
Prerequisite: Completion of all junior level courses.

NRS 430 Leadership in Professional Nursing (3)
Seminar designed to enable students to develop a beginning framework for nursing leadership and practice. In-depth examination of management principles, theories and professional practice issues.
Prerequisite: Completion of all junior level courses.
Corequisite: NRS 436.

NRS 434 Nursing Care of Adults II (3)
Nursing of adult clients experiencing increasingly complex biopsychosocial health altercations.
Corequisite: NRS 436.
Prerequisite: Completion of all junior level courses.

NRS 436 Practicum in Professional Nursing (5)
Practicum offered in a variety of acute care settings designed to facilitate the transition from student to practicing professional. Students will apply the nursing process to acutely ill clients while functioning as a leader and an agent of change.
Prerequisite: Completion of all junior level courses.

NRS 460 Topics in Nursing (2-4)
Provides comprehensive theoretical nursing content to senior nursing students in a specialty area, e.g., critical care, maternity, industrial, intensive care, operating room, etc. Clinical experience in a health care facility may be required. May be repeated for additional credit.
Prerequisite: NRS 420 or 430.

NRS 490 Independent Study (1-12)
Options include the opportunity for selected students to participate in faculty research or preceptorships in areas of special interest. Permission of undergraduate program director is needed to enroll for more than 4 credits of independent study in one semester. May be taken more than once for a total of 12 credits.

UNIVERSITY FACULTY

This list reflects faculty appointments effective June 1, 1991 as they were available on the publication date.

Officers of Instruction

JOSEPH E. CHAMPAGNE, President of Oakland University and Professor of Management; Ph.D., Purdue University

KEITH R. KLECKNER, Senior Vice President for Academic Affairs and Provost and Professor of Engineering; Ph.D., Cornell University

The Faculty

ALI A. ABBASI, Clinical Associate Professor of Health Sciences; M.D., Damascus University

HODA ABDEL-ATY-ZOHDY, Associate Professor of Engineering; Ph.D., University of Waterloo

BONNIE F. ABIKO, Assistant Professor of Art History; Ph.D., Princeton University

BARBARA M. ADAMS, Adjunct Instructor in Medical Laboratory Sciences; M.A., Eastern Michigan University

JAMES R. ADAMS, Clinical Instructor in Medical Laboratory Sciences; M.S., Wayne State University

CLARA ADAMS-ENDER, Adjunct Professor of Nursing; M.S., R.N., University of Minnesota

JOYCE ADELSON, Adjunct Assistant Professor of Music; B.Mus., Eastman School of Music

JANICE ALBRIGHT, Adjunct Assistant Professor of Music; B.Mus.Ed., Indiana University

OSMAN D. ALTAN, Adjunct Associate Professor of Engineering; Ph.D., University of California (Berkeley)

WALLIS MAY ANDERSEN, Assistant Professor of Rhetoric; Ph.D., University of Detroit

KEVIN T. ANDREWS, Associate Professor of Mathematical Sciences; Ph.D., University of Illinois

SHELDON L. APPLETON, Professor of Political Science and Associate Provost for Undergraduate Studies; Ph.D., University of Minnesota

FREDERICO A. ARCARI, Consulting Professor of Health Sciences; M.D., Glasgow University

JOSEPH A. ARENDS, Clinical Assistant Professor of Exercise Science; M.D., Wayne State University

ALIREZA ARMIN, Clinical Associate Professor of Medical Laboratory Sciences; M.D., Tehran University

ELWOOD P. ARMOUR, Clinical Assistant Professor of Medical Physics; Ph.D., University of Texas

HARVEY J. ARNOLD, Professor of Mathematical Sciences; Ph.D., Princeton University

MARY E. ARSHAGOUNI, Assistant Professor of English; Ph.D., University of California (Los Angeles)

JOSEPH ASSENZO, Adjunct Professor of Mathematical Sciences; Ph.D., Oklahoma University

ANN H. ATKINSON, Assistant Professor of Education; Ph.D., Florida State University

JOHN W. ATLAS, Associate Professor of Education; Ed.D., Wayne State University

ALLEN L. BABCOCK, Clinical Assistant Professor of Physical Therapy; M.D., Loyola-Stritch School of Medicine (Maywood, Illinois)

WILLIAM R. BACK, Clinical Associate Professor of Exercise Science; D.O., Kirksville College

MORRIS I. BANK, Clinical Associate Professor of Medical Physics; Ph.D., University of Michigan

JAMES D. BANNON, Adjunct Professor of Sociology; Ph.D., Wayne State University

GARY C. BARBER, Visiting Assistant Professor of Engineering; Ph.D., University of Michigan

LIZABETH A. BARCLAY, Associate Professor of Management and Chairperson, Department of Management and Marketing; Ph.D., Wayne State University

JOHN BARNARD, Professor of History; Ph.D., University of Chicago

CARL F. BARNES, JR., Professor of Art History and Archaeology; Ph.D., Columbia University.

SUSAN M. BARRETT, Assistant Professor of Theatre; M.A., Texas Technological University

RICHARD F. BARRON, Associate Professor of Education; Ph.D., Syracuse University

BILLY BEN BAUMANN, Clinical Associate Professor of Medical Laboratory Sciences; M.D., Washington University (St. Louis, Missouri)
MOHAMMAD S. BAZAZ, Assistant Professor of Accounting; Ph.D., University of Oklahoma
JOHN L. BEARDMAN, Professor of Art; M.F.A., Southern Illinois University
MELINDA G. BEAUDRY, Assistant Professor of Nursing; M.S.N., R.N., Wayne State University
MICHAEL R. BEAUVAIS, Clinical Instructor in Physical Therapy; B.S., Wayne State University
ELSA R. BECK, Adjunct Assistant Professor of Medical Physics; Ph.D., Colorado State University, D.V.M., Oklahoma State University
RONALD R. BECK, Adjunct Professor of Engineering; Ph.D., University of Iowa
DAVID BECKER, Adjunct Associate Professor of Chemistry; Ph.D., University of Washington
JACK E. BELEN, Clinical Assistant Professor of Physical Therapy; D.O., Chicago College of Osteopathic Medicine
LINDA BENSON, Assistant Professor of History; Ph.D., University of Leeds (England)
BEVERLY K. BERGER, Professor of Physics; Ph.D., University of Maryland
JAY BERNSTEIN, Clinical Professor of Medical Laboratory Sciences; M.D., State University of New York
PETER J. BERTOCCI, Professor of Anthropology; Ph.D., Michigan State University
DIKKA BERVEN, Visiting Assistant Professor of French; Ph.D., University of Maryland
KEITH A. BERVEN, Associate Professor of Biological Sciences; Ph.D., University of Maryland
STAN A. BEYLER, Adjunct Assistant Professor of Biological Sciences; Ph.D., University of Illinois
WILLIAM E. BEZDEK, Associate Professor of Sociology; Ph.D., University of Chicago
BHUSHAN L. BHATT, Professor of Engineering and Associate Dean, School of Engineering and Computer Science; Ph.D., Oakland University
JANE M. BINGHAM, Professor of Education; Ph.D., Michigan State University
PETER J. BINKERT, Professor of Linguistics and Classics and Chairperson, Department of Linguistics; Ph.D., University of Michigan
KLAUS M. BLACHE, Adjunct Assistant Professor of Industrial Health and Safety; Ph.D., Wayne State University
GLORIA T. BLATT, Associate Professor of Education; Ph.D., Michigan State University
CARL E. BLEIL, Adjunct Professor of Physics; Ph.D., University of Oklahoma
DUANE L. BLOCK, Consulting Professor of Health Sciences; M.D., University of Wisconsin
MARK S. BLUMENKRANZ, Clinical Associate Professor of Biomedical Sciences; M.D., Brown University
DAVID E. BODDY, Professor of Engineering; Ph.D., Purdue University
SETH BONDER, Adjunct Professor of Mathematical Sciences; Ph.D., Ohio State University
MICHAEL J. BORRELLI, Adjunct Professor of Medical Physics; Ph.D., University of Illinois (Urbana-Champaign)
PETER M. BORUTA, Clinical Assistant Professor of Physical Therapy; M.D., Wayne State University
ELEFTHERIOS N. BOTSAS, Professor of Economics and Management; Ph.D., Wayne State University
HENRY D. BOUTROS, Clinical Instructor in Physical Therapy; M.A., Wayne State University
IAN S. BRADBURY, Assistant Professor of Mathematical Sciences; Ph.D., University of Birmingham (England)
LOUIS R. BRAGG, Professor of Mathematical Sciences; Ph.D., University of Wisconsin
DANIEL N. BRAUNSTEIN, Professor of Management and Psychology; Ph.D., Purdue University
DAVID C. BRICKER, Professor of Philosophy; Chairperson, Department of Philosophy; Ph.D., Johns Hopkins University
GOTTFRIED BRIEGER, Professor of Chemistry; Ph.D., University of Wisconsin
JANE BRIGGS-BUNTING, Professor of Journalism and Chairperson, Department of Rhetoric, Communications and Journalism; J.D., University of Detroit
MAX BRILL, Associate Professor of Psychology; Ph.D., University of Cincinnati
MARC E. BRIOD, Associate Professor of Education and Philosophy; Ph.D., Northwestern University
RICHARD W. BROOKS, Associate Professor of Philosophy; Ph.D., University of Minnesota
GREGORY GIL BROWN, Adjunct Assistant Professor of Linguistics; Ph.D., Wayne State University
JUDITH K. BROWN, Professor of Anthropology; Ed.D., Harvard University

ROBERT W. BROWN, Associate Professor of Education and Chairperson, Department of Counseling; Ph.D., Wayne State University
NICOLE B. BUFFARD-O'SHEA, Assistant Professor of French; Ph.D., University of California (Davis)
ARTHUR W. BULL, Assistant Professor of Chemistry; Ph.D., Wayne State University
HARVEY BURDICK, Professor of Psychology; Ph.D., University of Minnesota
RICHARD J. BURKE, Professor of Philosophy; Ph.D., University of Chicago
FRANCIS M. BUTTERWORTH, Professor of Biological Sciences; Ph.D., Northwestern University
BARBARA J. CAHALAN, Clinical Instructor in Medical Laboratory Sciences; B.S., Aquinas College
BARUCH CAHLON, Professor of Mathematical Sciences; Ph.D., Tel Aviv University
JOSEPH H. CALLAGHAN, Visiting Instructor in Accounting; M.B.A., University of Detroit
DENIS M. CALLEWAERT, Professor of Chemistry; Ph.D., Wayne State University
JOHN B. CAMERON, Professor of Art History; Ph.D., Yale University
CAROLYN CAMPBELL, Assistant Professor of Anthropology; Ph.D., Wayne State University
RAY A. CARLSON, Clinical Instructor in Medical Physics; M.S., Wayne State University
PENNY S. CASS, Associate Professor of Nursing and Interim Dean, School of Nursing; Ph.D., R.N., University of Michigan
THOMAS W. CASSTEVENS, Professor of Political Science; Ph.D., Michigan State University
ELLEN M. CHAPIN, Clinical Instructor in Medical Laboratory Sciences; B.S., University of Kentucky
RASUL G. CHAUDHRY, Associate Professor of Biological Sciences; Ph.D., University of Manitoba
VEERAPPA K. CHETTY, Visiting Professor of Economics; Ph.D., University of Wisconsin
CHARLES CHING-AN CHENG, Associate Professor of Mathematical Sciences; Ph.D., Rutgers University
KA CHAI CHEOK, Associate Professor of Engineering; Ph.D., Oakland University
J. CURTIS CHIPMAN, Associate Professor of Mathematical Sciences; Ph.D., Dartmouth College
MICHAEL CHOPP, Professor of Physics; Ph.D., New York University
ROBERT J. CHRISTINA, Associate Professor of Education; Ph.D., Syracuse University
FRANK A. CIOCH, Assistant Professor of Engineering; Ph.D., University of Michigan
CHRISTOPHER R. CLASON, Assistant Professor of German; Ph.D., University of California
F. JAMES CLATWORTHY, Associate Professor of Education and Associate Dean, School of Education and Human Services; Ph.D., University of Michigan
FRANK M. CLEARY, Adjunct Instructor in Industrial Health and Safety; M.B.A., Washington University
FAYE M. COBB, Special Instructor in Physical Therapy; M.A., Wayne State University
SADIK COKELEZ, Assistant Professor of Operations Management; D.B.A., Texas Technological University
NATALIE BELL COLE, Assistant Professor of English; Ph.D., State University of New York (Buffalo)
GERALD COMPTON, Adjunct Assistant Professor of Chemistry; M.S., Oakland University
KRISTINE SALOMON CONDIC, Associate Professor, University Library; M.S.L., Western Michigan University
WILLIAM W. CONNELLAN, Adjunct Associate Professor of Journalism and Associate Provost; Ph.D., University of Michigan
BRIAN A. CONNERY, Assistant Professor of English; Ph.D., University of Arizona
GEORGE E. COON, Professor of Education and Chairperson, Department of Reading and Language Arts; Ed.D., Wayne State University
DAVID N. COOPER, Associate Professor of Education and Director, Ken Morris Center for the Study of Labor and Work; Ed.D., Rutgers University
ROSE MARIE COOPER, Associate Professor of Rhetoric; Ph.D., Wayne State University
ADDINGTON M. COPPIN, Assistant Professor of Economics; Ph.D., University of the West Indies
CARLO COPPOLA, Professor of Hindi-Urdu and Linguistics and Director, Center for International Programs; Ph.D., University of Chicago
PETER M. CORRY, Clinical Professor of Medical Physics; Ph.D., University of Texas
JOHN D. COWLISHAW, Associate Professor of Biological Sciences; Ph.D., Pennsylvania State University
RONALD L. CRAMER, Professor of Education; Ph.D., University of Delaware
WILLIAM S. CRAMER, Assistant Professor, University Library; M.S.L.S., Case Western Reserve University

JOHN D. CRISSMAN, Clinical Professor of Medical Laboratory Sciences; M.D., Western Reserve University

HARRIETT L. CRONIN, Clinical Instructor in Medical Laboratory Sciences; B.S., St. Mary's College

JOHN P. CULLEN, Consulting Professor of Health Sciences; M.B.A., Michigan State University

GEORGE DAHLGREN, Professor of Chemistry, Vice Provost and Dean of Graduate Study; Ph.D., University of Wyoming

KATHERINE L. DAHLSTROM, Visiting Assistant Professor of Journalism; B.A., Oakland University

DAVID DANIELS, Professor of Music; Ph.D., University of Iowa

MONOHAR K. DAS, Associate Professor of Engineering; Ph.D., Colorado State University

INDRA M. DAVID, Associate Professor, University Library and Associate Dean, University Library; Ph.D., Wayne State University

JAMES E. DAWSON, Associate Professor of Music; A.Mus.D., University of Michigan

REYNA T. de BLUMENTRITT, Clinical Instructor in Physical Therapy

ALBERT A. DePOLO, Clinical Assistant Professor of Exercise Science; D.O., Philadelphia College of Osteopathic Medicine

DANIEL E. DeSOLE, Clinical Professor of Health Behavioral Science; M.D., University of Cincinnati

DAVID DiCHIERA, Adjunct Professor of Music; Ph.D., University of California (Los Angeles)

BERNADETTE DICKERSON, Special Instructor in Rhetoric; B.S., Ohio State University

GADIS J. DILLON, Professor of Accounting and Chairperson, Department of Accounting and Finance; Ph.D., University of Michigan

SUSAN DINGLER, Clinical Instructor in Medical Laboratory Sciences; B.F.A., University of Wisconsin

DAVID P. DOANE, Professor of Quantitative Methods; Ph.D., Purdue University

WILLIAM DOBREFF, Adjunct Assistant Professor of Health Behavioral Sciences; J.D., Detroit College of Law

A. CHARLES DORANDO, Clinical Professor of Physical Therapy; B.S., Adelphi College

JULIA J. DORMINEY, Assistant Professor of Education; Ph.D., Florida State University

NITIN C. DOSHI, Clinical Assistant Professor of Health Sciences; M.D., S.C.B. College (India)

JOHN N. DOVARAS, Associate Professor of Music; M.M., Northwestern University and D.Litt (Honorary), Alma College

JAMES W. DOW, Professor of Anthropology; Ph.D., Brandeis University

DAVID J. DOWNING, Associate Professor of Mathematical Sciences and Associate Dean, College of Arts and Sciences; Ph.D., University of Iowa

ELENA I. DVORIN, Clinical Assistant Professor of Medical Laboratory Sciences; Ph.D., Academy of Science of USSR

HOWARD J. DWORKIN, Clinical Professor of Medical Physics; M.D., Albany Medical College

DE WITT S. DYKES, JR, Associate Professor of History; M.A., University of Michigan

JAY W. EASTMAN, Clinical Assistant Professor of Health Behavioral Sciences; M.D., Wayne State University

JANE D. EBERWEIN, Professor of English; Ph.D., Brown University

ROBERT T. EBERWEIN, Professor of English and Chairperson, Department of English; Ph.D., Wayne State University

JOYCE ECKART, Assistant Professor of Education; Ed.D., University of Rochester

ROBERT H. EDGERTON, Professor of Engineering; Ph.D., Cornell University

KAREN S. EHRAT, Adjunct Professor of Nursing; Ph.D., R.N., University of Arizona

LAURIE N. EISENHOWER, Assistant Professor of Dance; M.F.A., Arizona State University

ISAAC ELIEZER, Professor of Chemistry and Associate Dean, College of Arts and Sciences; Ph.D., Hebrew University of Jerusalem

NAOMI ELIEZER, Adjunct Assistant Professor of Biological Sciences and Chemistry; Ph.D., Hebrew University of Jerusalem

MARTIN A. ERICKSON, Adjunct Professor of Engineering; M.S., Chrysler Institute

ROBERT I. FACKO, Associate Professor of Music and Chairperson, Department of Music, Theatre and Dance; Ed.D., Columbia University

DONALD R. FALKENBURG, Adjunct Professor of Engineering; Ph.D., Case Western Reserve University

EDWARD J. FARRAGHER, Associate Professor of Finance; Ph.D., University of Illinois
ANNE CAIRNS FEDERLEIN, Associate Professor of Education; Ph.D., University of Michigan
WILLIAM C. FISH, Associate Professor of Education and Philosophy; Ed.D., Columbia University
SHERMAN T. FOLLAND, Associate Professor of Economics; Ph.D., University of Iowa
AUGUSTIN K. FOSU, Associate Professor of Economics; Ph.D., Northwestern University
SUZANNE O. FRANKIE, Professor, University Library and Dean, University Library; D.P.A., George Washington University
BARRY A. FRANKLIN, Clinical Associate Professor of Exercise Science; Ph.D., Pennsylvania State University
GERALD G. FREEMAN, Professor of Education; Ph.D., University of Michigan
JANICE E. FRIES, Assistant Professor of Nursing; M.S.N., R.N., Ohio State University
JON FROEMKE, Associate Professor of Mathematical Sciences; Ph.D., University of California (Berkeley)
DANIEL H. FULLMER, Associate Professor of Linguistics and English; Ph.D., University of Michigan
WILLIAM B. FUQUA, Clinical Associate Professor of Medical Laboratory Sciences; M.D., Medical College of Alabama
RITA MUNLEY GALLAGHER, Assistant Professor of Nursing; Ph.D., R.N., Wayne State University
GEORGE J. GAMBOA, Professor of Biological Sciences; Ph.D., University of Kansas
SUBRAMANIAM GANESAN, Associate Professor of Engineering; Ph.D., Indian Institute of Science (India)
WILMA GARCIA, Associate Professor of Rhetoric; Ph.D., Wayne State University
GEORGE L. GARDINER, Professor, University Library; M.A., University of Chicago
DAVID GARFINKLE, Assistant Professor of Physics; Ph.D., University of Chicago
ROBERT G. GAYLOR, Associate Professor, University Library; M.L.S., University of Oklahoma
KATHY GEERING, Adjunct Instructor in Nursing; B.S.N., R.N., Wayne State University
JULIEN GENDELL, Associate Professor of Chemistry; Ph.D., Cornell University
BEVERLEY B. GELTNER, Associate Professor of Education; Ph.D., University of Michigan
GEORGE R. GERBER, Clinical Associate Professor of Health Sciences; M.D., Wayne State University
GRANT R. GERHART, Adjunct Professor of Engineering; Ph.D., Wayne State University
LEONARDAS V. GERULAITIS, Associate Professor of History; Ph.D., University of Michigan
RENATE GERULAITIS, Professor of German and Chairperson, Department of Modern Languages and Literatures; Ph.D., University of Michigan
FRANK J. GIBLIN, Associate Professor of Biomedical Sciences; Ph.D., State University of New York (Buffalo)
STEVEN W. GILBERT, Associate Professor of Education; Ph.D., Purdue University
DAVID K. GILBOE, Clinical Instructor in Physical Therapy; B.S., Wayne State University
MICHAEL E. GILLESPIE, Associate Professor of Theatre; Ph.D., Stanford University
DANIEL P. GLAZIER, Adjunct Instructor in Industrial Health and Safety; M.S., Wayne State University
ALEKSANDRA E. GLOWACKA, Assistant Professor of Marketing; Ph.D., Indiana University
HARRY GOLD, Associate Professor of Sociology; Ph.D., University of Michigan
ROBERT J. GOLDSTEIN, Professor of Political Science; Ph.D., University of Chicago
SEYMOUR GORDON, Clinical Professor of Health Sciences; M.D., University of Michigan
SHELDON R. GORDON, Associate Professor of Biological Sciences and Adjunct Associate Professor of Biomedical Sciences; Ph.D., University of Vermont
BRIAN R. GOSLIN, Associate Professor of Exercise Science; Ph.D., Rhodes University (South Africa)
ESTHER M. GOUDSMIT, Professor of Biological Sciences; Ph.D., University of Michigan
JAMES D. GRAHAM, Associate Professor of History; Ph.D., Northwestern University
PAUL R. GRAVES, Assistant Professor of Philosophy; Ph.D., University of California (Irvine)
KARL D. GREGORY, Professor of Economics and Management; Ph.D., University of Michigan
KEVIN T. GRIMM, Assistant Professor of English; Ph.D., University of Virginia
JERROLD W. GROSSMAN, Professor of Mathematical Sciences; Ph.D., Massachusetts Institute of Technology
THADDEUS A. GRUDZIEN, Assistant Professor of Biological Sciences; Ph.D., Virginia Polytechnic Institute and State University

REN-JYH GU, Associate Professor of Engineering; Ph.D., State University of New York (Buffalo)
YOU-LANG GU, Assistant Professor of Engineering; Ph.D., Purdue University
ANDREW S. GUNSBERG, Assistant Professor of Education; Ph.D., University of Illinois
GERALD W. HALL, Adjunct Assistant Professor of Political Science; M.P.A., Wayne State University
JOHN F. HALPIN, Assistant Professor of Philosophy; Ph.D., University of Illinois (Chicago)
CAROL E. HALSTED, Associate Professor of Dance; Ed.D., Wayne State University
BARBARA B. HAMILTON, Associate Professor of Rhetoric; Ph.D., University of Southern California
W. DORSEY HAMMOND, Professor of Education; Ph.D., University of Delaware
NIGEL HAMPTON, Associate Professor of English; Ph.D., University of Connecticut
CHRISTINE H. HANSEN, Assistant Professor of Psychology; Ph.D., Michigan State University
RANALD D. HANSEN, Professor of Psychology; Ph.D., University of Connecticut
FEONA M. HANSEN-SMITH, Assistant Professor of Biological Sciences; Ph.D., Medical College of Wisconsin
KENNETH M. HARMON, Professor of Chemistry; Ph.D., University of Washington
ALGEA O. HARRISON, Professor of Psychology; Ph.D., University of Michigan
MICHAEL K. HARTZER, Assistant Professor of Biomedical Sciences; Ph.D., Iowa State University
RICHARD E. HASKELL, Professor of Engineering; Ph.D., Rensselaer Polytechnic Institute
SUSAN E. HAWKINS, Assistant Professor of English; Ph.D., University of Oregon
JOSEPH A. HELPERN, Adjunct Assistant Professor of Medical Physics; Ph.D., Oakland University
JOHN W. HENKE, JR., Associate Professor of Marketing; Ph.D., Michigan State University
EGBERT W. HENRY, Professor of Biological Sciences and Chairperson, Department of Biological Sciences; Ph.D., The City University of New York
NEILS HEROLD, Assistant Professor of English; Ph.D., University of California (Berkeley)
FRED W. HETZEL, Professor of Physics; Ph.D., University of Waterloo (Ontario)
KENNETH R. HIGHTOWER, Associate Professor of Biomedical Sciences; Ph.D., Southern Illinois University
LINDA L. HILDEBRAND, Assistant Professor, University Library; M.A., University of Denver
DONALD C. HILDUM, Professor of Communications; Ph.D., Harvard University
VAN E. HILLARD, Assistant Professor of Rhetoric; Ph.D., University of Cincinnati
ASA HILLIARD, Adjunct Professor of Education; Ed.D., University of Denver
DALE HOEKSTRA, Clinical Assistant Professor of Physical Therapy; M.D., Wayne State University
EDWARD HAWORTH HOEPPNER, Assistant Professor of English; Ph.D., University of Iowa
STANLEY W. HOLLINGSWORTH, Professor of Music; Fellow of the American Academy of Roma
AMIR M. HORMOZI, Assistant Professor of Operations Management; Ph.D., University of Houston
ALICE S. HORNING, Associate Professor of Rhetoric and Linguistics; Ph.D., Michigan State University
RONALD M. HORWITZ, Professor of Finance; Ph.D., Michigan State University
VIRGINIA R. HOSBACH, Special Instructor in Nursing; M.S.N., R.N., Oakland University
ROBBIN R. HOUGH, Professor of Economics and Management; Ph.D., Massachusetts Institute of Technology
JOSEPH D. HOVANESIAN, Professor of Engineering and Chairperson, Department of Mechanical Engineering; Ph.D., Michigan State University
SHARON L. HOWELL, Associate Professor of Communications; Ph.D., Wayne State University
JAMES F. HOYLE, Professor of English; Ph.D., Princeton University
JAMES W. HUGHES, Professor of Education; Ed.D., University of New Mexico
YAU YAN HUNG, Professor of Engineering; Ph.D., University of Illinois
R. DOUGLAS HUNTER, Associate Professor of Biological Sciences; Ph.D., Syracuse University
TIMOTHY ISMOND, Clinical Assistant Professor of Exercise Science; D.O., Michigan State University
RIKUMA ITO, Adjunct Professor of Management; Ph.D., University of Illinois
ODED IZRAELI, Professor of Economics; Ph.D., University of Chicago
FRANCES C. JACKSON, Assistant Professor of Nursing; Ph.D., R.N., Wayne State University
GLENN A. JACKSON, Professor of Engineering and Chairperson, Department of Computer Science and Engineering; Ph.D., University of Michigan
SHEILA M. JACOBS, Assistant Professor of Management Information Systems; Ph.D., Arizona State University

ROBERT W. JARSKI, Associate Professor of Exercise Science; Ph.D., University of Iowa
WILLIAM D. JAYMES, Associate Professor of French; Ph.D., University of Kansas
BARBARA J. JENKINS, Clinical Associate Professor of Medical Laboratory Sciences; M.D., Wayne State University
MICHAEL M. JOH, Clinical Assistant Professor of Medical Laboratory Sciences; M.D., Seoul National University (Korea)
G. PHILIP JOHNSON, Professor of Mathematical Sciences; Ph.D., University of Minnesota
MARY A. JOHNSON, Assistant Professor of Nursing; Ed.D., R.N., Wayne State University
RODNEY C. JOHNSON, Visiting Instructor in Linguistics; M.A., University of Michigan
GERARD R. JOSWIAK, Adjunct Assistant Professor of Biological Sciences; Ph.D., Wayne State University
ROBERT P. JUDD, Associate Professor of Engineering; Ph.D., Oakland University
JACK E. JUNI, Adjunct Assistant Professor of Medical Physics; M.D., University of Michigan
JORGE O. JUST VIERA, Clinical Associate Professor of Medical Physics; M.D., University of Maryland
FREDDY M. KALTENBORN, Clinical Professor of Physical Therapy; D.O., London College of Osteopathy
ADRIAN KANTROWITZ, Adjunct Professor of Physics; M.D., Long Island College of Medicine
ALMIRA KARABEG, Assistant Professor of Mathematical Sciences; Ph.D., University of California (San Diego)
MARY C. KARASCH, Professor of History; Ph.D., University of Wisconsin
JOHN J. KARAZIM, Clinical Associate Professor of Exercise Science; M.D., Wayne State University
RAYMOND E. KARCHER, Clinical Associate Professor of Medical Laboratory Sciences; Ph.D., Purdue University
FRANK C. KAVA, Clinical Assistant Professor of Physical Therapy; M.S., University of Kentucky
KRISTIE S. KAVA, Clinical Assistant Professor of Physical Therapy; M.S., University of Kentucky
JOHN F. KAZMIERSKI, Clinical Associate Professor of Exercise Science; D.O., College of Osteopathic Medicine and Surgery (Des Moines, Iowa)
PHILIP H. KEILA, Clinical Instructor in Physical Therapy; B.S., Oakland University
PATRICIA T. KETCHAM, Assistant Professor of Nursing; M.S.N., R.N., Oakland University
PAUL A. KETCHUM, Associate Professor of Biological Sciences; Ph.D., University of Massachusetts
VINCENT B. KHAPOYA, Professor of Political Science; Ph.D., University of Denver
NAIM A. KHEIR, Professor of Engineering and Chairperson, Department of Electrical and Systems Engineering; Ph.D., The Hungarian Academy of Sciences
TERENCE E. KILBURN, Adjunct Professor of Theatre and Artistic and Director, Meadow Brook Theatre
JOHN D. KIM, Assistant Professor of Marketing; Ph.D., University of Cincinnati
SEYOUNG KIM, Visiting Assistant Professor of Engineering; Ph.D., Pennsylvania State University
PAUL O. KINGSTROM, Adjunct Professor of Management; Ph.D., Wayne State University
SUDHA R. KINI, Clinical Associate Professor of Medical Laboratory Sciences; M.B.B.S., Bombay University
JOSEPH A. KLAITS, Professor of History; Ph.D., University of Minnesota
ROBERT KLEIMAN, Assistant Professor of Finance; Ph.D., Michigan State University
JOHN S. KLEMANSKI, Assistant Professor of Political Science; Ph.D., Wayne State University
NORMAN KLOOSTERMAN, Assistant Professor of Nursing; M.S.N., R.N., Wayne State University
DEANNA D. KLOSINSKI, Clinical Assistant Professor in Medical Laboratory Sciences; Ph.D., Wayne State University
MARGARET KLUKA, Clinical Instructor in Medical Laboratory Sciences; M.S., Wayne State University
OSA JACKSON KLYKKEN, Associate Professor of Physical Therapy; Ph.D., University of Michigan
CHING LONG KO, Assistant Professor of Engineering; Ph.D., University of Oklahoma
PETER R. KOVACEK, Clinical Instructor in Physical Therapy; M.S.A., Central Michigan University
ROY A. KOTYNEK, Associate Professor of History; Ph.D., Northwestern University
JANET A. KROMPART, Professor, University Library; M.L.S., University of California (Berkeley)
KORNELIA KULIG, Assistant Professor of Physical Therapy; Ph.D., Academy of Physical Education (Wroclaw, Poland)

DEVADATTA M. KULKARNI, Assistant Professor of Mathematical Sciences; Ph.D., Purdue University
ANAHID KULWICKI, Assistant Professor of Nursing; D.N.S., R.N., Indiana University School of Nursing
RUBEN S. KURNETZ, Clinical Associate Professor of Health Behavioral Sciences; M.D., University of Michigan
MARGARET L. KURZMAN, Special Instructor in Rhetoric; Ph.D., Union Graduate School (Cincinnati, Ohio)
ROBERT H. KUSHLER, Assistant Professor of Mathematical Sciences; Ph.D., University of Michigan
MYRON M. LaBAN, Clinical Professor of Health Sciences; M.D., University of Michigan
I. THEODORE LANDAU, Associate Professor of Psychology; Ph.D., University of California
CATHY A. LARSON, Senior Clinical Instructor in Physical Therapy; M.S., University of Alabama (Birmingham)
JANUSZ W. LASKI, Professor of Engineering; Ph.D., Technical University of Gdansk
MICHAEL A. LATCHA, Assistant Professor of Engineering; Ph.D., Wayne State University
DAVID L. LAU, Assistant Professor of Communications; Ph.D., Southern Illinois University
THOMAS W. LAUER, Assistant Professor of Management Information Systems; Ph.D., Indiana University
ROSS R. LAVOIE, Clinical Instructor in Medical Laboratory Sciences; B.A., Wayne State University
ALBERT L. LEDERER, Associate Professor of Management Information Systems and Chairperson, Department of Decision and Information Sciences; Ph.D., Ohio State University
YONG JUN LEE, Clinical Assistant Professor of Medical Physics; Ph.D., University of Illinois
LEONARD LEONE, Adjunct Professor of Theatre
FRANK J. LEPKOWSKI, Assistant Professor, University Library; M.L.S., University of Michigan
MURRAY B. LEVIN, Clinical Professor of Exercise Science; M.D., Wayne State University
JOHN H. LIBCKE, Clinical Associate Professor of Medical Laboratory Sciences; M.D., Wayne State University
ABRAHAM R. LIBOFF, Professor of Physics; Ph.D., New York University
LAWRENCE G. LILLISTON, Associate Professor of Psychology and Chairperson, Department of Psychology; Ph.D., Temple University
CHARLES B. LINDEMANN, Professor of Biological Sciences; Ph.D., State University of New York (Albany)
JAMES D. LLEWELLYN, Adjunct Assistant Professor of Journalism; B.S., University of Wisconsin
BARBARA S. LLOYD, Adjunct Instructor in Nursing; M.P.H., R.N., University of Michigan
NAN K. LOH, John F. Dodge Professor of Engineering and Associate Dean, School of Engineering and Computer Science; Ph.D., University of Waterloo
JACQUELINE I. LOUGHEED, Professor of Education; Ed.D.,Wayne State University
DAVID G. LOWY, Associate Professor of Psychology; Ph.D., University of Tennessee
MICHAEL R. LUBETSKY, Clinical Assistant Professor of Physical Therapy; M.D., Wayne State University
JANE LEE LUKACS, Visiting Instructor in Nursing; M.S.N., R.N., Madonna College
AARON LUPOVITCH, Clinical Associate Professor of Medical Laboratory Sciences; M.D., Wayne State University
BARBARA MABEE, Assistant Professor of German; Ph.D., Ohio State University
WILLIAM A. MACAULEY, Associate Professor of Political Science and Chairperson, Department of Political Science; Ph.D., University of Houston
MELANIE MADERCIC, Clinical Instructor in Medical Laboratory Sciences; M.S., Wayne State University
TOM MADHAVAN, Adjunct Professor of Biological Sciences; M.D., University of Madras (India)
JED G. MAGEN, Clinical Assistant Professor of Health Behavioral Sciences; D.O., College of Osteopathic Medicine and Surgery, Des Moines, Iowa
FREDERICK P. MAIBAUER, Clinical Assistant Professor of Physical Therapy; M.D., Wayne State University
TADEUSZ MALINSKI,Associate Professor of Chemistry; Ph.D., University of Poznan
DONALD G. MALM, Professor of Mathematical Sciences; Ph.D., Brown University
BRUCE J. MANN, Assistant Professor of English; Ph.D., University of Michigan
SHAHRAKH MANSOORI, Adjunct Professor of Nursing; M.D., Pahlov University (Iran)

MICHAEL MARCOTTY, Adjunct Professor of Engineering; B.,S., University of Reading (England)
RAYMOND R. MARGHERIO, Clinical Professor of Biomedical Sciences; M.D., Wayne State University
HARRIET E. MARGOLIS, Assistant Professor of English; Ph.D., Indiana University
CHARLES R. C. MARKS, Assistant Professor of Exercise Science; Ph.D., University of Michigan
JOHN MARNEY, Associate Professor of Chinese; Ph.D., University of Wisconsin
JERRY E. MARSH, Special Instructor in Engineering; M.S., Oakland University
DAVID W. MASCITELLI, Associate Professor of English; Ph.D., Duke University
DONALD O. MAYER, Assistant Professor of Management; J.D., Duke University
KATHRYN M. McARDLE-PIGOTT, Associate Professor of Spanish; Ph.D., Universidad Central de Madrid
TURK McCLESKEY, Assistant Professor of History; Ph.D., College of William and Mary
GARY C. McDONALD, Adjunct Professor of Mathematical Sciences; Ph.D., Purdue University
JAMES H. McKAY, Professor of Mathematical Sciences; Ph.D., University of Washington
JOHN M. McKINLEY, Professor of Physics; Ph.D., University of Illinois
ALBERT J. MEEHAN, Assistant Professor of Sociology; Ph.D., Boston University
JANE MEIKLE, Adjunct Instructor in Industrial Health and Safety; B.A., Colby College
MILDRED H. MERZ, Associate Professor, University Library; M.L.S., George Peabody College
RAMUNE V. MIKAILA, Special Instructor in Nursing; M.Ed., R.N., Loyola University
CREAGH E. MILFORD, Clinical Associate Professor of Exercise Science; D.O., Chicago College of Osteopathic Medicine
FATMA MILI, Associate Professor of Engineering; Ph.D., University of Paris
DONALD M. MILLER, Professor of Education and Chairperson, Department of Human Development and Child Studies; Ph.D., University of Wisconsin
STEVEN R. MILLER, Associate Professor of Chemistry; Ph.D., Massachusetts Institute of Technology
SARUNAS S. MINGELA, Adjunct Instructor in Industrial Health and Safety; M.S., Wayne State University
BILLY JOE MINOR, Associate Professor of Education; Ph.D., Indiana University
MARY E. MITTELSTAEDT, Assistant Professor of Nursing; M.S.N., R.N., Wayne State University
SID MITTRA, Professor of Finance; Ph.D., University of Florida
JACK R. MOELLER, Professor of German; Ph.D., Princeton University
JEAN A. MOHAN, Special Instructor in Nursing; M.S.N., R.N., Wayne State University
PATRICIA G. MONTENEGRO, Assistant Professor of Spanish; Ph.D., Stanford University
GARY MOORE, Associate Professor of Nursing; Ph.D., R.N., Wayne State University
KATHLEEN H. MOORE, Associate Professor of Chemistry; Ph.D., Wayne State University
SEAN F. MORAN, Assistant Professor of History; Ph.D., American University
DONALD E. MORSE, Professor of English; Ph.D., University of Connecticut
CHARLES E. MORTON, Adjunct Professor of Philosophy; Ph.D., Columbia University
VIRINDER K. MOUDGIL, Professor of Biological Sciences; Ph.D., Banaras Hindu University (India)
EDWARD F. MOYLAN, Adjunct Professor of Mathematical Sciences; M.A., University of Detroit
SHARON P. MUIR, Professor of Education and Chairperson, Department of Curriculum, Instruction and Leadership; Ph.D., University of Nebraska
LINDA MUNRO, Visiting Instructor in Nursing; M.S.N., R.N., Wayne State University
BRIAN F. MURPHY, Associate Professor of English and Director, Honors College; Ph.D., University of London
J. AUSTIN MURPHY, Associate Professor of Finance; Ph.D., University of Georgia
KEVIN J. MURPHY, Associate Professor of Economics; Ph.D., Michigan State University
LOUIS J. NACHMAN, Professor of Mathematical Sciences; Ph.D., Ohio State University
ASISH C. NAG, Professor of Biological Sciences; Ph.D., University of Alberta
JOANNE NAPIEWOCKI, Adjunct Associate Professor of Nursing; J.D., M.S.N., R.N., Wayne State University
KEVIN S. NATHAN, Assistant Professor of Accounting; Ph.D., University of Oregon
RUTH NATHAN, Adjunct Assistant Professor of Psychology; Ph.D., Oakland University
ROBERT C. NESTOR, Clinical Assistant Professor of Exercise Science; D.O., Kansas City College of Osteopathic Medicine

LYLE E. NORDSTROM, Professor of Music; D.M.A., Stanford University
NANCY A. O'CONNOR, Assistant Professor of Nursing; M.S.N., R.N., Wayne State University
THEOPHILUS O. OGUNYEMI, Visiting Assistant Professor of Mathematical Sciences; Ph.D., Kansas State University
RICKY E. OLSON, Clinical Assistant Professor of Physical Therapy; M.D., Wayne State University
RONALD E. OLSON, Professor of Health Behavioral Sciences and Dean, School of Health Sciences; Ph.D., Illinois Institute of Technology
ROGER J. ORDIDGE, Professor of Physics; Ph.D., Nottingham University (England)
CYNTHIA D. OSBORN, Adjunct Instructor in Nursing; B.S.N., R.N., Madonna College
CARL R. OSTHAUS, Associate Professor of History; Ph.D., University of Chicago
MARY L. OTTO, Associate Professor of Education; Ed.D., Indiana University
CARRIE OWENS, Special Instructor in Education; M.A., Michigan State University
JAMES R. OZINGA, Professor of Political Science; Ph.D., Michigan State University
MOON J. PAK, Clinical Professor of Health Sciences; Ph.D., University of Minnesota
RAVI PARAMESWARAN, Professor of Marketing and Management Information Systems; Ph.D., Georgia State University
MICHAEL J. PARROTT, Clinical Assistant Professor of Medical Physics; Ph.D., University of Notre Dame
JAMES E. PAYNE, Assistant Professor of Economics; Ph.D., Florida State University
ROBERT G. PAYNE, Associate Professor of Education and Chairperson, Department of Human Resource Development; Ph.D., University of Michigan
EILEEN PEACOCK, Assistant Professor of Accounting; Ph.D., University of Birmingham (England)
SANDRA H. PELFREY, Assistant Professor of Accounting; M.B.A., Wright State University
SUBBAIAH PERLA, Associate Professor of Mathematical Sciences; Ph.D., University of Rochester
CYNTHIA PETRACK, Adjunct Instructor in Nursing; B.S.N., R.N., Oakland University
RICHARD L. PETTENGILL, Assistant Professor, University Library; M.S., Columbia University
JOHN R. PFEIFER, Clinical Professor of Health Sciences; M.D., University of Saskatchewan
DAWN M. PICKARD, Assistant Professor of Education; Ph.D., Purdue University
DAVID R. PIEPER, Clinical Associate Professor of Health Sciences; Ph.D., Wayne State University
MARGARET B. PIGOTT, Associate Professor of Rhetoric; Ph.D., University of Detroit
CHRISTINE PILLOW, Special Instructor in Physical Therapy; M.A., Wayne State University
GERALD J. PINE, Professor of Education and Dean, School of Education and Human Services; Ed.D., Boston University
RICHARD C. PIPAN, Assistant Professor of Education; Ed.D., University of North Carolina
JAMES C. PIPP, Clinical Instructor in Physical Therapy; M.Ed., Wayne State University
LINDA M. PIPP, Clinical Instructor in Physical Therapy; B.S., Wayne State University
C. MICHELLE PISKULICH, Instructor in Political Science; M.A., University of Missouri (Columbia)
JOHN P. PISKULICH, Assistant Professor of Political Science; Ph.D., State University of New York (Binghamton)
RAMMOHAN PISHARODI, Associate Professor of Marketing; Ph.D., University of Tennessee
GARY PLAGENS, Adjunct Instructor in Nursing; M.S.N., R.N., Wayne State University
ANN M. POGANY, Assistant Professor, University Library; A.M.L.S., University of Michigan
ANNE PORTER, Associate Professor of Education; Ph.D., Wayne State University
HAROLD D. PORTNOY, Clinical Professor of Medical Physics; M.D., Wayne State University
M. DAVE POULIK, Adjunct Professor of Biological Sciences; M.D., University of Toronto Medical School
RAJENDRA PRASAD, Clinical Associate Professor of Exercise Science; M.D., Prince of Wales Medical College (India)
DEAN G. PURCELL, Professor of Psychology; Ph.D., University of Toronto
TIMOTHY R. QUIGLEY, Visiting Assistant Professor of Philosophy; M.F.A., University of Wisconsin (Madison)
MUNIBUR RAHMAN, Professor of Hindi-Urdu; Ph.D., University of London
LUELLEN RAMEY, Associate Professor of Education; Ph.D., University of Florida
KANAMARLAPUDI RAO, Clinical Assistant Professor of Physical Therapy; M.D., Guntur Medical College, Andhra University (India)

RONALD F. RAPIN, Assistant Professor of Spanish; Ph.D., Michigan State University
MARILYN J. RAYMOND, Clinical Instructor in Physical Therapy; M.A., Wayne State University
JOHN R. REDDAN, Professor of Biological Sciences and Adjunct Professor of Biomedical Science; Ph.D., University of Vermont
CHANDRA S. REDDY, Clinical Assistant Professor of Exercise Science; M.D., Osmania Medical College
VENKAT N. REDDY, Professor of Biomedical Sciences and Director, Eye Research Institute; Ph.D., Fordham University
CLEMENTINE V. RICE, Assistant Professor of Nursing; M.S.N., R.N., Wayne State University
JOANN RICHARDS, Visiting Assistant Professor of Nursing; M.S.N., R.N., Wayne State University
JEANNE M. RIDDLE, Clinical Associate Professor of Health Sciences; Ph.D., Wayne State University
RODERIC E. RIGHTER, Professor of Education; Ed.D., Wayne State University
MICHAEL V. RILEY, Professor of Biomedical Sciences; Ph.D., Liverpool University
DANIEL F. RING, Assistant Professor, University Library; M.S.L.S., University of Wisconsin (Madison)
RENATE I. ROHDE, Assistant Professor of Education; Ph.D., Indiana University
JOAN G. ROSEN, Associate Professor of English; M.A., Wayne State University
JOSEPH S. ROSENSHEIN, Clinical Associate Professor of Medical Physics; Ph.D., Massachusetts Institute of Technology
JOSEPH ROSZKA, Clinical Instructor in Medical Laboratory Sciences; B.S., University of Michigan
RICHARD J. ROZEK, Associate Professor of Industrial Health and Safety; Ph.D., Wayne State University
ANDRZEJ RUSEK, Professor of Engineering; Ph.D., Technical University of Warsaw (Poland)
DEBORAH RUSERT, Adjunct Instructor in Nursing; M.S.N., R.N., Wayne State University
JOEL W. RUSSELL, Professor of Chemistry; Ph.D., University of California (Berkeley)
JULIUS RUTZKY, Consulting Professor of Biomedical Sciences; M.D., New York University School of Medicine
ANANDI P. SAHU, Assistant Professor of Economics; Ph.D., Washington University
PANAJIOTIS SAKKALIS, Assistant Professor of Mathematical Sciences; Ph.D., University of Rochester (New York)
JOYCE A. SALANCY, Clinical Instructor in Medical Laboratory Sciences; M.S. Wayne State University
BRIAN P. SANGEORZAN, Associate Professor of Engineering; Ph.D., University of Wisconsin (Madison)
FAZLUL SARKAR, Adjunct Associate Professor of Chemistry; Ph.D., Banaras Hindu University (India)
JACQUELINE R. SCHERER, Professor of Sociology and Chairperson, Department of Sociology and Anthropology; Ph.D., Syracuse University
FRANK SCHIEBER, Assistant Professor of Psychology; Ph.D., University of Notre Dame
RALPH J. SCHILLACE, Associate Professor of Psychology; Ph.D., University of Cincinnati
JANICE SCHIMMELMAN, Associate Professor of Art History; Ph.D., University of Michigan
ALICE JOAN SCHMIDT, Adjunct Assistant Professor of Nursing; Ph.D., R.N., Wayne State University
DARRELL P. SCHMIDT, Professor of Mathematical Sciences; Ph.D., Montana State University
JAMES C. SCHMIDT, Associate Professor of Education; Ph.D., Wayne State University
PETER SCHMIDT, Adjunct Professor of Chemistry; Ph.D., University of Michigan
IRWIN E. SCHOCHETMAN, Professor of Mathematical Sciences; Ph.D., University of Maryland
THOMAS E. SCHOMAKER, Clinical Assistant Professor of Exercise Science; D.O., Chicago College of Osteopathic Medicine
F. DARLENE SCHOTT-BAER, Assistant Professor of Nursing; Ph.D., R.N., Wayne State University
SHERRYL A. SCHULTZ, Assistant Professor of Industrial Health and Safety; Ph.D., Clemson University
WILLIAM SCHWAB, Professor of Linguistics and English; Ph.D., University of Wisconsin
HOWARD S. SCHWARTZ, Associate Professor of Management; Ph.D., Cornell University
ROBERT M. SCHWARTZ, Associate Professor of Education; Ph.D., University of Illinois
ROBERTA C. SCHWARTZ, Associate Professor of Journalism; Ph.D., Wayne State University
ROBERT L. SEGULA, Clinical Assistant Professor of Exercise Science; M.D., University of Michigan

DANIEL SELAHOWSKI, Clinical Instructor in Physical Therapy; B.S., New York University
MARK W. SEVERSON, Associate Professor of Chemistry; Ph.D., University of Minnesota
CYNTHIA L. SEVILLA, Adjunct Associate Professor of Chemistry; Ph.D., University of Washington
MICHAEL D. SEVILLA, Professor of Chemistry; Ph.D., University of Washington
CAROLYN A. SHALHOUB, Clinical Instructor in Medical Laboratory Sciences; B.S., University of Detroit
DAVID W. SHANTZ, Associate Professor of Psychology; Ph.D., Purdue University
BARKUR S. SHASTRY, Associate Professor of Biomedical Sciences; Ph.D., University of Mysore (India)
GARY SHEPHERD, Associate Professor of Sociology; Ph.D., Michigan State University
PETER SHI, Assistant Professor of Mathematical Sciences; Ph.D., University of Delaware
HITOSHI SHICHI, Adjunct Professor of Biomedical Sciences; Ph.D., University of California (Berkeley)
MEIR SHILLOR, Associate Professor of Mathematical Sciences; Ph.D., University of Jerusalem
CORNELIUS J. SHINE, Professor of Journalism; B.S., University of Detroit
BRYAN P. SHUMAKER, Adjunct Assistant Professor of Physics; M.D., Michigan State University
DAVID D. SIDAWAY, Special Instructor in Accounting; M.Acc., Ohio State University
BORIS K. SILBERBERG, Clinical Associate Professor of Medical Laboratory Sciences; M.D., Wayne State University
ALLEN SILBERGLEIT, Clinical Associate Professor of Physical Therapy; Ph.D., Wayne State University
SALLY M. SILK, Assistant Professor of French; Ph.D., University of Michigan
PHILIP SINGER, Professor of Health Behavioral Sciences and Anthropology; Ph.D., Syracuse University
SUZANNE MARY SKOWRONSKI, Visiting Instructor in Nursing; M.S.N., R.N., Wayne State University
DOROTHY J. SMITH, Clinical Instructor in Physical Therapy; B.S., Wayne State University
MICHAEL B. SMITH, Assistant Professor of Linguistics; Ph.D., University of California (San Diego)
STEPHEN SONG, Adjunct Assistant Professor of Industrial Health and Safety; Ph.D., University of California (Los Angeles)
RICHARD G. SOPER, Clinical Assistant Professor of Medical Laboratory Sciences; M.D., University of Tennessee
HOWARD SPLETE, Professor of Education; Ph.D., Michigan State University
GOPALAN SRINIVASAN, Assistant Professor of Physics; Ph.D., Indian Institute of Technology (Bombay, India)
RONALD J. SRODAWA, Associate Professor of Engineering; Ph.D., University of Michigan
RICHARD B. STAMPS, Associate Professor of Anthropology; Ph.D., Michigan State University
MIRON STANO, Professor of Economics and Management; Ph.D., Cornell University
KEITH E. STANOVICH, Professor of Psychology and Education; Ph.D., University of Michigan
PAUL D. STEIN, Adjunct Professor of Medical Physics; M.D., University of Cincinnati
ROBERT L. STERN, Associate Professor of Chemistry; Ph.D., Johns Hopkins University
GEORGE E. STEVENS, Professor of Management and Dean of the School of Business Administration; D.B.A., Kent State University
ROBERT B. STEWART, JR., Associate Professor of Psychology; Ph.D., Pennsylvania State University
CHARLOTTE V. STOKES, Professor of Art History and Chairperson, Department of Art and Art History; Ph.D., University of Washington
ALFRED W. STRANSKY, Associate Professor of Exercise Science, Director of Health Enhancement Programs, and Associate Dean for Community Health, School of Health Sciences; Ph.D., Florida State University
DIANE B. STRICKER, Adjunct Professor of Accounting; Ph.D., Cornell University
TARUVAI N. SUBRAMANIAM, Assistant Professor of Mathematical Sciences; Ph.D., Brandeis University
RONALD A. SUDOL, Professor of Rhetoric; Ph.D., State University of New York (Stony Brook)
RONALD M. SWARTZ, Professor of Education and Philosophy; Ph.D., New York University
CAROL A. SWIFT, Associate Professor of Education; Ph.D., University of Arizona

WINSON TAAM, Assistant Professor of Mathematical Sciences; Ph.D., University of Wisconsin
R. CRAIG TAYLOR, Professor of Chemistry; Ph.D., Princeton University
NORMAN TEPLEY, Professor of Physics and Chairperson, Department of Physics; Ph.D., Massachusetts Institute of Technology
ANTHONY R. TERSIGNI, Adjunct Assistant Professor of Health Behavioral Sciences and Adjunct Assistant Professor of Political Science; M.P.A., Oakland University
BARBARA A. THEISEN, Assistant Professor of Accounting; M.S.T., Walsh College of Accountancy and Business Administration
DEBORAH D. THOMPSON, Clinical Instructor in Medical Laboratory Sciences; B.S., University of Michigan
KRISTINE A. THOMPSON, Special Instructor in Physical Therapy; M.P.H., University of Michigan
LASSE ERIK THUE, Clinical Instructor in Physical Therapy
PAUL TOMBOULIAN, Professor of Chemistry and Chairperson, Department of Chemistry; Ph.D., University of Illinois
JOHN E. TOWER, Associate Professor of Management Information Systems and Associate Dean, School of Business Administration; Ph.D., State University of New York (Buffalo)
DYANNE M. TRACY, Assistant Professor of Education; Ph.D., Indiana Univesity
RONALD L. TRACY, Associate Professor of Economics and Chairperson, Department of Economics; Ph.D., Michigan State University
MICHAEL T. TRESE, Clinical Associate Professor of Biomedical Sciences; M.D., Georgetown University
ANNE H. TRIPP, Professor of History; Ph.D., University of Michigan
SZE-KAI TSUI, Professor of Mathematical Sciences; Ph.D., University of Pennsylvania
RICHARD P. TUCKER, Professor of History; Ph.D., Harvard University
J. BARRY TURETT, Professor of Mathematical Sciences; Ph.D., University of Illinois
ALEXANDER S. ULLMANN, Clinical Associate Professor of Health Sciences; M.D., University of Munich Medical School (W. Germany)
NALIN J. UNAKAR, Professor of Biological Sciences and Adjunct Professor of Biomedical Sciences; Ph.D., Brown University
JOHN K. URICE, Professor of Theatre and Dean, College of Arts and Sciences; Ph.D., Florida State University
KENNETH L. URWILLER, Consulting Professor of Health Sciences; M.D., University of Nebraska
CARL R. VANN, Professor of Health Behavioral Sciences and Political Science; Ph.D., Syracuse University
MARY P. VAN SELL, Associate Professor of Management; Ph.D., University of Iowa
ROBERT P. VAN TIL, Associate Professor of Engineering; Ph.D., Northwestern University
FLAVIO VARANI, Associate Professor of Music; M.M., Manhattan School of Music
CLARENCE B. VAUGHN, Clinical Professor of Physical Therapy; M.D., Howard University
UMA DEVI VENKATESWARAN, Assistant Professor of Physics; Ph.D., University of Missouri (Columbia)
SARMA R. VISHNUBHOTLA, Associate Professor of Engineering; Sc.D., Washington University (St. Louis)
CHRISTIAN C. WAGNER, Associate Professor of Engineering; Ph.D., Michigan State University
SATISH K. WALIA, Associate Professor of Biological Sciences; Ph.D., Maharishi Dayavand University (India)
RICHARD H. WALKER, Clinical Professor of Medical Laboratory Sciences; M.D., Emory University School of Medicine
W. DONALD WALLACE, Associate Professor of Physics; Ph.D., Wayne State University
JANE M. WALTER, Associate Professor of Physical Therapy; Ed.D., University of Vermont
TONI S. WALTERS, Associate Professor of Education; Ph.D., Oakland University
STUART S. WANG, Professor of Mathematical Sciences; Ph.D., Cornell University
LENORA L. WARD, Adjunct Instructor in Nursing; B.S.N., R.N., Oakland University

DONALD I. WARREN, Associate Professor of Sociology; Ph.D., University of Michigan
ELINOR B. WATERS, Adjunct Associate Professor of Education; Ed.D., Wayne State University
GILBERT L. WEDEKIND, Professor of Engineering; Ph.D., University of Illinois
ROBERT V. WEIMER, Clinical Instructor in Medical Laboratory Sciences
KENNETH MICHAEL ANTHONY WELCH, Adjunct Professor of Medical Physics; M.B.Ch.B., University of Bristol
MARY ANN WELLER, Visiting Instructor in Medical Laboratory Sciences; M.S., Wayne State University

JAMES R. WELLS, Adjunct Professor of Biological Sciences; Ph.D., Ohio State University
TUNG H. WENG, Professor of Engineering; Ph.D., University of Missouri (Columbia)
PEGGY ANN WENK, Clinical Instructor in Medical Laboratory Sciences; B.S., Oakland University
MARY LOU WESLEY, Adjunct Instructor in Nursing; M.S.N., R.N., Madonna Collge
ROBERT M. WEST, Adjunct Professor of Anthropology and Biological Sciences; Ph.D., University of Chicago
T. J. WHARTON, Associate Professor of Operations Management; Ph.D., University of Minnesota
JOHN PAUL WHITE, Associate Professor of Music; Diploma, Curtis Institute of Music
GEORGE A. WILLIAMS, Clinical Associate Professor of Biomedical Sciences; M.D., Northwestern University
J. LYNNE WILLIAMS, Associate Professor of Medical Laboratory Sciences; Ph.D., Wayne State University
FLOYD G. WILLOUGHBY, Associate Professor of Management; Ph.D., Michigan State University
DIANE R. WILSON, Assistant Professor of Nursing; Ph.D., R.N., Michigan State University
THOMAS G. WINDEKNECHT, Professor of Engineering; Ph.D., Case Institute of Technology
BARRY S. WINKLER, Associate Professor of Biomedical Sciences; Ph.D., State University of New York (Buffalo)
HOWARD R. WITT, Professor of Engineering and Dean, School of Engineering and Computer Science; Ph.D., Cornell University
SUSAN E. WOOD, Associate Professor of Art History; Ph.D., Columbia University
KENNETH M. WOODWARD, Clinical Instructor in Physical Therapy
MARK E. WORKMAN, Associate Professor of English and Folklore; Ph.D., University of Pennsylvania
STEPHEN J. WRIGHT, Professor of Mathematical Sciences; Ph.D., Indiana University
JON A. YATES, Assistant Professor of Biological Sciences; Ph.D., Tulane University
JOHN R. YLVISAKER, Consulting Professor of Health Sciences; M.D., University of Minnesota
KENNETH M. YORK, Assistant Professor of Management; Ph.D., Bowling Green State University
CAROL S. ZENAS, Associate Professor of Nursing; Ph.D., R.N., University of Michigan
HAROLD ZEPELIN, Professor of Psychology; Ph.D., University of Chicago
MARTHA T. ZINGO, Assistant Professor of Political Science; Ph.D., University of Maryland
MOHAMED A. ZOHDY, Associate Professor of Engineering; Ph.D., University of Waterloo
RICHARD J. ZUNKER, Consulting Professor of Health Sciences; B.S., Marquette University

Professors Emeriti

CHARLES W. AKERS, Professor Emeritus of History; Ph.D., Boston University
EDWARD A. BANTEL, Professor Emeritus of Education and Psychology; Ed.D., Columbia University
JOHN W. BARTHEL, Professor Emeritus of German and Linguistics; Ph.D., University of Illinois
DAVID C. BEARDSLEE, Professor Emeritus of Psychology; Ph.D., University of Michigan
DOLORES M. BURDICK, Professor Emerita of French; Ph.D., University of California (Berkeley)
HAROLD C. CAFONE, Professor Emeritus of Education; Ed.D., University of Arizona
JOSEPH W. DeMENT, Professor Emeritus of English; Ph.D., Indiana University
JOHN W. DETTMAN, Professor Emeritus of Mathematical Sciences; Ph.D., Carnegie Institute of Technology
ALFRED J. DuBRUCK, Professor Emeritus of French; Ph.D., University of Michigan
DAVID H. EVANS, Professor Emeritus of Engineering; Ph.D., Brown University
GEORGE F. FEEMAN, Professor Emeritus of Mathematical Sciences; Ph.D., Lehigh University
THOMAS FITZSIMMONS, Professor Emeritus of English; M.A., Columbia University
WILLIAM C. FORBES, Professor Emeritus of Biological Sciences; Ph.D., University of Connecticut
SIDNEY W. GRABER, Professor Emeritus of Education; Ed.D., Wayne State University
HARRY T. HAHN, Professor Emeritus of Education; Ed.D., Temple University
LASZLO J. HETENYI, Distinguished Professor Emeritus of Performing Arts and Education; Ed.D., Michigan State University
EDWARD J. HEUBEL, Professor Emeritus of Political Science; Ph.D., University of Minnesota
ADELINE G. HIRSCHFELD-MEDALIA, Professor Emerita of Theatre; Ph.D., Wayne State University
WILLIAM C. HOFFMAN, Professor Emeritus of Mathematical Sciences; Ph.D., University of California (Los Angeles)

ROBERT C. HOWES, Professor Emeritus of History; Ph.D., Cornell University
DON R. IODICE, Professor Emeritus of French and Linguistics; M.A., Yale University
PATRICK J. JOHNSON, Professor Emeritus of Education; Ed.D., Wayne State University
HELEN KOVACH-TARAKANOV, Professor Emerita of Russian; Ph.D., Elizabeth University (Hungary)
ROGER H. MARZ, Professor Emeritus of Political Science; Ph.D., Michigan State University
GEORGE T. MATTHEWS, Distinguished Professor Emeritus of History; Ph.D., Columbia University
RICHARD A. MAZZARA, Professor Emeritus of French; Ph.D., University of Kansas
NAHUM Z. MEDALIA, Professor Emeritus of Sociology; Ph.D., Harvard University
RALPH C. MOBLEY, Professor Emeritus of Physics; Ph.D., University of Wisconsin
WILLIAM F. MOORHOUSE, Professor Emeritus of Education; Ed.D., University of Wyoming
LEWIS N. PINO, Professor Emeritus of Chemistry; Ph.D., University of Buffalo
ROBERT E. SIMMONS, Professor Emeritus of German; Ph.D., Stanford University
W. PATRICK STRAUSS, Professor Emeritus of History; Ph.D., Columbia University
AMITENDRANATH TAGORE, Professor Emeritus of Chinese; Ph.D., Visva Bharati University (India)
S. BERNARD THOMAS, Professor Emeritus of History; Ph.D., Columbia University
PAUL A. TIPLER, Professor Emeritus of Physics; Ph.D., University of Illinois
CARMEN M. URLA, Professor Emerita of Spanish; M.A., University of Illinois
GERTRUDE M. WHITE, Distinguished Professor Emerita of English; Ph.D., University of Chicago

OFFICES OF THE UNIVERSITY

Board of Trustees

Howard F. Sims, Chairman
Larry W. Chunovich
Andrea L. Fischer
Phyllis Law Googasian, Vice Chairman
David Handleman
L. Brooks Patterson
Stephan Sharf
James A. Sharp, Jr.

Office of the President

Joseph E. Champagne, Ph.D., President
Cassandra L. Phillips, M.A., Executive Assistant to the President

Athletics

Paul E. Hartman, Ph.D., Director
Jane E. Bentham, B.S., Office Manager
Paul Chapoton, M.A., Ed.S., Baseball Coach
Shawn Clemons, B.A., Assistant Women's Basketball Coach and Intramural Director
Mark Coffman, M.A., Assistant Men's Basketball Coach
Hal Commerson, B.S., Cross Country Coach
Dave DeWulf, B.A.
Ronald J. Forbes, B.B.A., Business Manager
Thomas A. Ford, M.S., Trainer
Andrew Glantzman, M.A., Sports Information Director
Peter Hovland, M.A., Men's Swimming Coach
Robert N. Hurdle, B.A., Volleyball Coach
Tracy Huth, B.S., Women's Swimming Coach
Kristal Jeffrey, B.S., Men's and Women's Tennis Coach
Greg Kampe, M.A., Assistant to the Director, Men's Basketball Coach
Steve Lyon, M.A., Assistant Baseball Coach and Facilities Manager
Don Mason, Diving Coach
Gary Parsons, M.S., Soccer Coach
Bob Taylor, B.S., Women's Basketball Coach
Thomas Van Voorhis, M.S., Marketing and Promotions Representative

Office of Equal Opportunity

Catherine Rush, J.D., Assistant to the President and Director of Equal Opportunity
Edward S. Perez, B.S., Manager of Staff Development/Affirmative Action Administrator

Academic Affairs

Office of the Senior Vice President and Provost

Keith R. Kleckner, Ph.D., Senior Vice President for Academic Affairs and Provost
Virginia R. Allen, Ph.D., Assistant Provost and Director of Academic Services
Sheldon L. Appleton, Ph.D., Associate Provost for Undergraduate Studies
Scott J. Barns, M.P.A., Administrative Assistant
William W. Connellan, Ph.D., Associate Provost
George Dahlgren, Ph.D., Vice Provost and Dean of Graduate Study
Jane D. Eberwein, Ph.D., Secretary, University Senate
Joanne Griggs, M.B.A., Budget Manager
Priscilla A. Hildum, M.A.T., Assistant to the Provost

Academic Services and General Studies

Virginia R. Allen, Ph.D., Director
Marilyn Broderick, M.A., Counselor and Program Director
Carole Crum, M.A., Assistant Director
Freddie Martin, Ph.D., Counselor and Program Coordinator
Angela Banks Rankins, M.A., Counselor and Advising Coordinator

Admissions and Scholarships

Jerry Rose, M.A., Director
Anne Sandoval, M.A., Asociate Director
William Headley, M.A., Assistant Director
Stacy Penkala, M.A., Assistant Director
Joann Canaday, B.S., Admissions Adviser
Cynthia Hendrix, B.S., Admissions Adviser
Diane Rosario-Ledesma, B.A., Admissions Adviser
James Pauley, B.S., Admissions Adviser
Elizabeth Wawro, B.S., Admissions Adviser

Computer and Information Systems

Robert J. Robinson, M.S., Executive Director
Paul G. Amaranth, M.S., Senior Computer Scientist
Anthony M. Becker, B.Mus., Systems Programmer
Kenneth E. Byrd, Manager, Technical Services
Gary L. Cauchon, Senior Programmer Analyst
Timothy S. French, B.S., Data Base Analyst
Kenneth E. Gould, Computer Operations Supervisor
James H. Graham, Manager, Operations
Mary F. Grills, Senior Systems Analyst
Thomas J. Hacker, B.S., Systems Programmer/Minicomputer Systems
Barbara A. Jettke, B.A., Senior Programmer Analyst
Gerard R. Joswiak, Ph.D., Manager, Academic Services
Theresa M. Katz, B.A., Senior Systems Analyst
Vicki Larabell, B.A., Office Automation Analyst
Lily Li, M.L.S., Senior Programmer Analyst
Jeffrey D. Marraccini, Computer Resource Administrator
Warner E. Lindell, Senior Programmer Analyst
Mary Lou Matyjanowski, Senior Programmer Analyst
Robert D. McDonald, Office Automation Analyst
Carl M. Petersen IV, B.A., Programmer Analyst

Roland J. Schemers, B.S., Systems Programmer/Minicomputer Systems
Emeline Shulte, Senior Programmer Analyst
Chia-Poh Tai, M.S., Scientific Programmer Analyst
Lori A. Tirpak, B.S., Senior Programmer Analyst
Gail S. Trammel, Assistant Manager, Operations
Anthony Trojan, B.A., Senior Systems Analyst
Rajeswari Vishnubhotla, M.S., Scientific Analyst
William S. Watt, Senior Systems Programmer
Jean M. Wersching, M.A., Director, Administrative Information Services
Judith A. Wharry, Telecommunications Manager

Eye Research Institute

Venkat N. Reddy, Ph.D., Director
Bhargavan Chakrapani, M.S., Research Assistant
Paulette M. Realy, Assistant to the Director

Graduate Study

George Dahlgren, Ph.D., Dean
Sheryl Lynn Clark, B.S., Assistant to the Dean

Institutional Research

Georgia B. Aktan, Ph.D., Director
Brenda S. Yee, B.A., Social Science Research Assistant

Kresge Library

Suzanne O. Frankie, Ph.D., Dean
Indra David, Ph.D., Associate Dean
Eric Condic, B.A., Assistant to the Dean
Patrick D. McNeill, Coordinator, Technical Services, ITC
Rosemary L. Mitchell, B.A., Budget Officer
George T. Preisinger, M.A., Manager, ITC
Alexis L. Salisz, B.A., Manager, Technical Services
Louann Stewart, B.A., Manager, Circulation

Registrar

Lawrence R. Bartalucci, M.B.A., Registrar
Ronald L. Somerville, M.A., Associate Registrar
Elizabeth A. Millwood, M.A., Assistant Registrar for Records and Teacher Certification
Julie J. Riegle, B.A., Registration Officer
Laura A. Schartman, B.A., Assistant Registrar for Scheduling, Evening Program and Technical Support

Research and Academic Development

Donald A. McCrimmon, Ph.D., Director
Patricia A. Beaver, M.A., Information Specialist
Arlene Pamukcu, B.G.S., Grant and Contract Administrator
Robert C. Taylor, Ph.D., Science Liaison Officer

Instructional Units

College of Arts and Sciences

John K. Urice, Ph.D., Dean
David J. Downing, Ph.D., Associate Dean
Isaac Elieter, Ph.D., Associate Dean
Clarence Bennett, B.S., Electronics Engineer
William Bradford, Ph.D., Assistant Manager, Chemistry Laboratories
Patrick Colling, Instrument Design Engineer
Gerald Compton, M.S., Manager, Chemistry Laboratories
Carlo Coppola, Ph.D., Director, Center for International Programs
Loan T.N. Dang, Electron Microscopy Technician
Sally Daniel, M.Ed., Manager, Physics Laboratories
Stewart Dorsey, Manager, Instrument Shop
Janice S. Elvekrog, M.A.T., Administrative Assistant
Marcy J. Ford, M.A., Academic Adviser
Thomas F. Kirchner, M.A.T., Administrator for College Services
Brian F. Murphy, Ph.D., Director, Honors College
Rosemary Robinson, M.A., Advising Coordinator
John C. Shiff, B.S., Manager, Biological Sciences Laboratories
Deborah Szobel Logan, B.A., Editorial Associate
Lynn M. Workman, B.A., Curator of Slides, Art and Art History

School of Business Administration

George E. Stevens, Ph.D., Dean
John E. Tower, Ph.D., Associate Dean
Julie A. Dziekan, M.B.A., Administrator, Master of Business Administration Program
Katie Kazarian, M.A., Coordinator for Academic Advising
Carole Terry, M.A., Academic Adviser
Winfred I. Robinson, B.A., Computer Facilities Administrator

School of Education and Human Services

Gerald J. Pine, Ed.D., Dean
F. James Clatworthy, Ph.D., Associate Dean
Katherine S. Barney, M.A.T., Acting Program Coordinator, Lowry Child Care Center
David N. Cooper, Ed.D., Director, Ken Morris Center for the Study of Labor and Work
Elizabeth A. Cron, M.A., Coordinator, Counseling Practicum Laboratory
Roberta Dailey, B.A., Training Specialist, Continuum Center
Jean P. Goebel, M.A., Academic Adviser, Advising Center
Jane Goodman, Ph.D., Associate Director, Continuum Center
Judith Hoppin, M.A., Counselor/Trainer, Continuum Center
Jean Kirsch-Sullivan, Administrative Assistant to the Dean
Patricia K. Loncharich, B.A., Academic Adviser, Advising Center
Michael P. Long, J.D., Manager of Labor Studies Program, Ken Morris Center for the Study of Labor and Work
Maureen P. Markell, B.S., Community Liaison, Continuum Center
Barbara McCrory, M.A., Academic Adviser, Advising Center
Arvilla Moon, Program Specialist, Ken Morris Center for the Study of Labor and Work
Prince Moon, Program Specialist, Ken Morris Center for the Study of Labor and Work
Symantha O. Myrick, Program Specialist, Ken Morris Center for the Study of Labor and Work

Geraldine M. Palmer, M.A.T., Coordinator, School and Field Services
Mary Lou Stone, Coordinator, Older Adult Project, Continuum Center
Elinor Waters, Ed.D., Director, Continuum Center

School of Engineering and Computer Science

Howard R. Witt, Ph.D., Dean
Bhushan L. Bhatt, Ph.D., Associate Dean for Administration
Nan K. Loh, Ph.D., Associate Dean for Research and Development
Patrick Bennett, M.A., Academic Adviser/Program Coordinator
Lisa Birkby, B.S., Assistant to the Dean
Leonard M. Brown, Manager, Engineering Laboratories
Frederick J. Lutz, B.S., Engineering Cooperative Education Coordinator
Donald J. McCune, B.S., Computer Technologist
Forrest Wright, M.S., Manager, Mechanical Equipment and Instrumentation

School of Health Sciences

Ronald E. Olson, Ph.D., Dean
Alfred W. Stransky, Ph.D., Associate Dean for Community Health
Arthur J. Griggs, M.S., Assistant to the Dean
A. Jayne Hoskin, M.A., Academic Adviser
Clifford Snitgen, Manager, Clinical Research Laboratory

School of Nursing

Penny S. Cass, Ph.D., R.N., Interim Dean
W. W. Kent, Jr. Assistant to the Dean
Susan Lindberg, M.A., Coordinator, Academic Advising

Student Affairs

Office of the Vice President for Student Affairs

Wilma Ray-Bledsoe, B.A., Vice President
Jack T. Wilson, Ph.D., Associate Vice President
Ronald B. Kevern, M.A., Assistant Vice President
Manuel H. Pierson, Ed.D., Assistant Vice President of Student Affairs for University-School Relations
David E. Herman, Ph.D., Assistant Vice President and Dean of Students
Iris R. Johnson, M.A., Assistant Dean of Students
Nancy A. Schmitz, M.A., N.C.C., Assistant to the Dean of Students

Academic Skills Center

Lynn Hockenberger, M.A., Director
Jeanne M. Carter, M.A.T., Coordinator
Helen Woodman, M.A., Coordinator

Campus Information, Programs and Organizations (CIPO)

Maura Selahowski, M.A., Director
Paul L. Franklin, M.Ed., Coordinator, Campus Programs
Veronica Jenkins, B.S., Administrative Assistant
Gary Moss, M.A., Program Manager/MARCS

Counseling Center

Robert S. Fink, Ph.D., Director
Bela Chopp, Ph.D., Associate Director
Roxanne Allen, Ph.D., Counselor
Morris Frumin, M.D., Consulting Psychiatrist
F. Edward Rice, Ph.D., Clinical Psychologist
Nancy E. Resnick, D.O., Consulting Physician
Ralph Schillace, Ph.D., Clinical Psychologist
Barbara Talbot, Ph.D., Clinical Psychologist

Financial Aid

Lee Anderson, M.A., Director
Anne Bulliner, M.S.A., Associate Director
Carla Bender, B.A., Financial Aid Officer
Phelicia B. Jones, B.A., Financial Aid Adviser
Zina Haywood, B.A., Financial Aid Adviser

Graham Health Center

Nancy E. Resnick, D.O., Staff Physician
Susan K. Solomon, PA-C, Physician Assistant and Coordinator

Oakland Center

William K. Marshall, Director
David L. Bixby, B.A., Manager, University Bookcenter
Hosie Hillie, B.A., Conference Coordinator
Robert B. Johnson, Assistant Manager, University Bookcenter
Mona Wallace, M.A., Assistant Director, Oakland Center

Orientation

Elizabeth J. Talbert, M.A., Director

Placement and Career Services

Robert B. Thomas, M.Ed., Director
Alan Scott, M.B.A., Associate Director
Prasanna Datta, M.B.A., M.A., Assistant Director
Joyce Esterberg, B.A., Program Manager
William J. Jorns, Ed.S., Placement Coordinator
Andrea G. Luke, M.S., Placement Coordinator
Frederick J. Lutz, B.S., Coordinator of Cooperative Education

Residence Halls

Eleanor L. Reynolds, M.S., Director
Dan Lis, B.S., Assistant Director for Finance and Operations
Lisa McGill, M.A., Assistant Director for Administrative Services
Jean Miller, M.S.W., Assistant Director for Student Development

Special Advising

M. Jean Colburn, Ph.D., Director

Special Programs

Monifa Jumanne, M.Ed., Director
Janet Clerk, M.A., Counselor/Research Coordinator
David Moroz, B.A., Counselor/Program Coordinator
Robert Saulsberry, M.Ed., Academic Coordinator

Upward Bound

Kevin Williams, B.A., Director
Geraldine Graham, B.S., Assistant Director

Developmental and Alumni Affairs

Office of the Vice President

David H. Rodwell, B.A., Vice President

Alumni Relations

Jill K. Dunphy, B.A., Acting Director
Anne M. Engle, B.A., Assistant Director of Annual Giving

Development

Paul R. Osterhout, Ph.D., Director of Annual Funds and University Gift Accounting
David F. Romberg, Director of Major Gifts and Planned Giving

Gift Accounting and Donor Records

Pattie S. Harris, Manager
Patricia I. Rottenberk, Assistant Manager

News Service

James D. Llewellyn, B.S., Senior Editor and News Director
Jay Jackson, B.A., Staff Writer

Oakland University Foundation

James E. Kostrava, Executive Director of President's Club

Publications

Geoffrey C. Upward, M.A., Director
Cindy Bromell, B.F.A., Graphic Artist
Vicky Billington, B.A., Staff Writer
Lynn Metzker, B.F.A., Art Director
James C. Ross III, B.A.A., Staff Writer
Rick Smith, B.S., Photographer

University Relations

Margo E. King, Ph.D., Assistant Vice President for University Relations

Finance and Administration

Office of the Vice President

Robert J. McGarry, B.A., Vice President for Finance and Administration, Treasurer to the Board of Trustees
Ray T. Harris, C.P.A., Associate Vice President
Sharon K. Gould, B.A., Financial Analyst
Barbara Hardeman, B.S., Director, Purchasing
Catherine R. Lark, B.A., Director, Contract Administration and Risk Management
Laurel A. Strong, Administrative Assistant

Katke-Cousins Golf Course

William Rogers, B.A., P.G.A. Golf Professional and Managing Director
John J. Delcamp, Greens Superintendent
James A.S. Findlay, Assistant Golf Professional
James F. Obear, B.S., Assistant Golf Professional

Budget and Financial Planning

Patrick C. Nicosia, Ph.D., C.P.A., Director
Nancy B. Vander Werff, M.B.A., C.P.A., Assistant Director
Carl W. Hunt, B.B.A., Business Manager
Vicky Hunt, Budget Analyst
Mary Jo Koster, Senior Budget Analyst
Ronald M. Maierle, B.S., Business Manager, Auxiliary Operations

Campus Facilities and Operations

Alan F. Miller, M.S., M.B.A., Assistant Vice President
Frank D. Clark, Director, University Services
Nainan V. Desai, M.B.A., Director of Plant Engineering and Facilities Planning
Edward R. Dorich, General Foreman, Maintenance and Repair
Melvin E. Gilroy, Senior Investigator
Richard W. Leonard, M.S., Director, Public Safety
Richard C. Moore, Director, Buildings and Grounds
Albert P. Nordheden, M.S., Landscape Architect
M. Sue Smith, Property Manager
Grover Tigue, Supervisor, Central Heating Plant
Deborah O. Wade, B.A., Business Manager
Rance Williams, B.S., Manager of University Services
Weldon Williams, General Foreman, Maintenance and Repair

Controller's Office

Thomas C. Evans, C.P.A., Controller
Roberta A. Badgley, C.P.A., Assistant Controller
Rockne C. DeLauney, B.A., Special Accounts Analyst
Barbara S. Gaves, Payroll Manager
Munira Mithani-Knapp, C.P.A., Student Accounts Supervisor
Shawn Peralta, C.P.A., Financial Systems Administrator
Anne Marie Wiegmann, C.P.A., Manager, Cashiers and Voucher Audit

Employee Relations

Willard C. Kendall, M.A., Assistant Vice President
John E. McNab, B.B.A., Assistant Director, Manager of Compensation Administration
Victoria Y. Blackmon, M.A., Manager of Employment
Diana L. Decker, Manager of Staff Benefits
Edward S. Perez, B.S., Manager of Staff Development/Affirmative Action Administrator

Internal Audit

Peggy Cooke, C.P.A., Director
David P. Vartanian, C.P.A., Internal Auditor

General Counsel and Governmental Affairs

Office of the Vice President

John H. De Carlo, J.D., Vice President for Governmental Affairs and General Counsel and Secretary to the Board of Trustees
Robert H. Bunger, J.D., Assistant General Counsel
Susan Geritts, J.D., Staff Attorney
Catherine Gianakura, B.A.A., Administrative Assistant
June A. Rosenbloom, J.D., Staff Attorney

University Extension and Public Service

Office of the Vice President

Frank P. Cardimen, Jr., M.B.A., Interim Vice President

Continuing Education

Pamela A. Marin, Ph.D., Director
Gloria Boddy, B.S., Program Director, Legal Assistant, Paraprofessional Accounting and Personal Financial Planning Programs
Julie S. Clatworthy, B.A., Assistant to the Director of Marketing
Nadine E. Jakobowski, B.S., Director of Marketing and Program Director, Health and Medical Programs and Noncredit Computer Programs
Kathryn LeBlanc, M.P.A., Program Director, Humanities Programs, Assistant Program Director, Legal Assistant Program
Katherine Z. Rowley, Program Director, Plastics Technology Program and Business and Industrial Marketing Programs

Cultural Affairs

Stuart C. Hyke, B.A., Director
Gregg Bloomfield, B.A., Managing Director, Meadow Brook Music Festival
Sylvia P. Coughlin, Director of Public Relations, Meadow Brook Music Festival and Theatre
Suzanne Day, Box Office Manager, Meadow Brook Music Festival and Theatre
John K. Fischer, M.B.A., Finance Manager, Meadow Brook Music Festival and Theatre
Shirley Geary, Single Ticket Supervisor, Meadow Brook Music Festival and Theatre
Kathleen M. Gentile, Box Office Supervisor, Meadow Brook Music Festival and Theatre
Agnes Keinrath, Season Ticket Supervisor, Meadow Brook Music Featival and Theatre
Terence Kilburn, Artistic Director, Meadow Brook Theatre
Carol J. Lamb, B.G.S., Accountant and Financial Analyst, Meadow Brook Music Festival and Theatre
Jane U. Mosher, Assistant Director of Cultural Affairs for Community Relations
Jacqueline R. Sferlazza, Group Sales Manager, Meadow Brook Music Festival and Theatre
James P. Spittle, B.S., Managing Director, Meadow Brook Theatre
Kiichi Usui, M.A., Curator, Meadow Brook Art Gallery

Economic Development and Corporate Services

Frank P. Cardimen, Jr., M.B.A., Director

Meadow Brook Hall

Lowell R. Eklund, Ph.D., Executive Director, Consultant
Corenna M. Aldrich, B.A., Public Relations Director
Kyle E. Hoult, B.A., Program Administrator
Susan Jurkiewicz, B.A., Assistant Program Administrator
Jennifer L. Ketchum, B.A., Assistant Program Administrator
Paul A. McDowell, B.S., Assistant Managing Director
Margaret R. Twyman, Managing Director

Meadow Brook Health Enhancement Institute

Alfred W. Stransky, Ph.D., Director
Henry R. DeLorme, M.A., M.S., Assistant Director
Terry L. Dibble, B.S., Coordinator, Special Programs and Facilities and Corporate On-site Programs
Carl W. Hunt, B.B.A., Business Manager
Timothy J. Ismond, D.O., Medical Director
Lillian E. Smith, M.A., R.D., C., Nutritionist
Jeanne M. Wiest, M.A., Coordinator, Health Maintenance/Health Improvement Program and Corporate Program

Oakland University Foundation

Through its activities, the Oakland University Foundation, a separate legal corporation, provides influence, advice and financial support to the university. Support generated by its President's Club and other activities augments traditional resources of tuition and state appropriations, and serves to enhance and maintain the high-quality characteristics of the educational, cultural and public-service programs of Oakland University.

Directors

Eugene A. Miller, Chairman
Robert J. McGarry, Treasurer
John F. Mills*, Secretary
Andrew G. Creamer
Walter E. Douglas
Francis A. Engelhardt
Ernest L. Grove, Jr.
Alice Shotwell Gustafson
David T. Harrison
Fred D. Houghten
Ruth Huebner
A. Randolph Judd*
Marvin L. Katke
Walton A. Lewis
Paul F. Lorenz
Alex C. Mair
Howard L. McGregor, Jr.
Marian S. Mitchell
Henry D. Price
Ralph Reins
Roy E. Rewold
Louis R. Ross
Stephan Sharf
L. Gene Stohler
H. Wayne Wells
Phillip G. Williams*
Joseph E. Champagne, *ex officio*
James L. Howlett, *ex officio*
David H. Rodwell, *ex officio,* Executive Vice President

**Alumnus of Oakland University*

Oakland University Senate

The Senate is an all-university governance body whose membership includes administrative officers, students, and faculty members elected for two-year terms to represent their academic units. The provost is its presiding officer. It serves as a legislative forum that meets monthly during the academic year. The Senate recommends new degree programs to the president and the board and must approve the constitutions of colleges and schools. It determines academic policies and provides opportunity for public deliberation on issues of importance to the university.

The Senate carries out much of its work through its committees, all staffed mainly by faculty members but generally including student and administrative representatives as well. Currently there are 14 such committees whose responsibilities reflect the range of the Senate's concerns.

Academic and Career Advising Committee
Academic Computing Committee
Academic Conduct Committee
Academic Policy and Planning Committee
Campus Development and Environment Committee
Committee on Human Relations
General Education Committee
Graduate Council
Research Committee
Senate Steering Committee
Teaching and Learning Committee
University Committee on Undergraduate Instruction

Course Reference

INDEX

PLANNING PAGE

University Requirements			
Date	Field Category	Course Taken	Credits
	Arts		
	Literature		
	Language		
	Western Civilization		
	International Studies		
	Social Science		
	Mathematics		
	Natural Science		

Total credits
(Mininum 32)

Writing Requirements			
	Rhetoric 100		
	Rhetoric 101		

Total credits

College or School Requirements			
Date	Field Category	Course Taken	Credits

Total credits

Major:	

Requirements

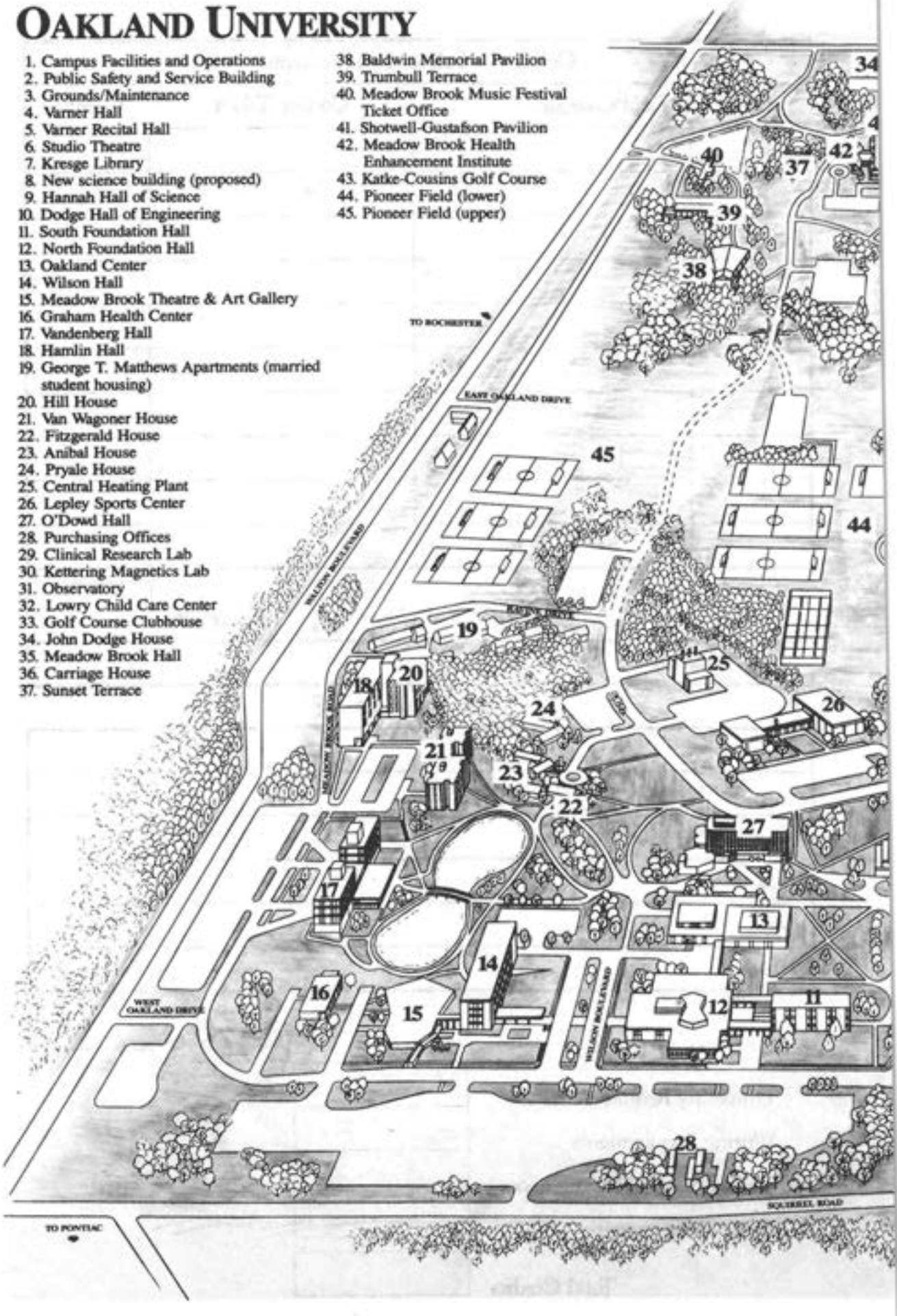
Total credits

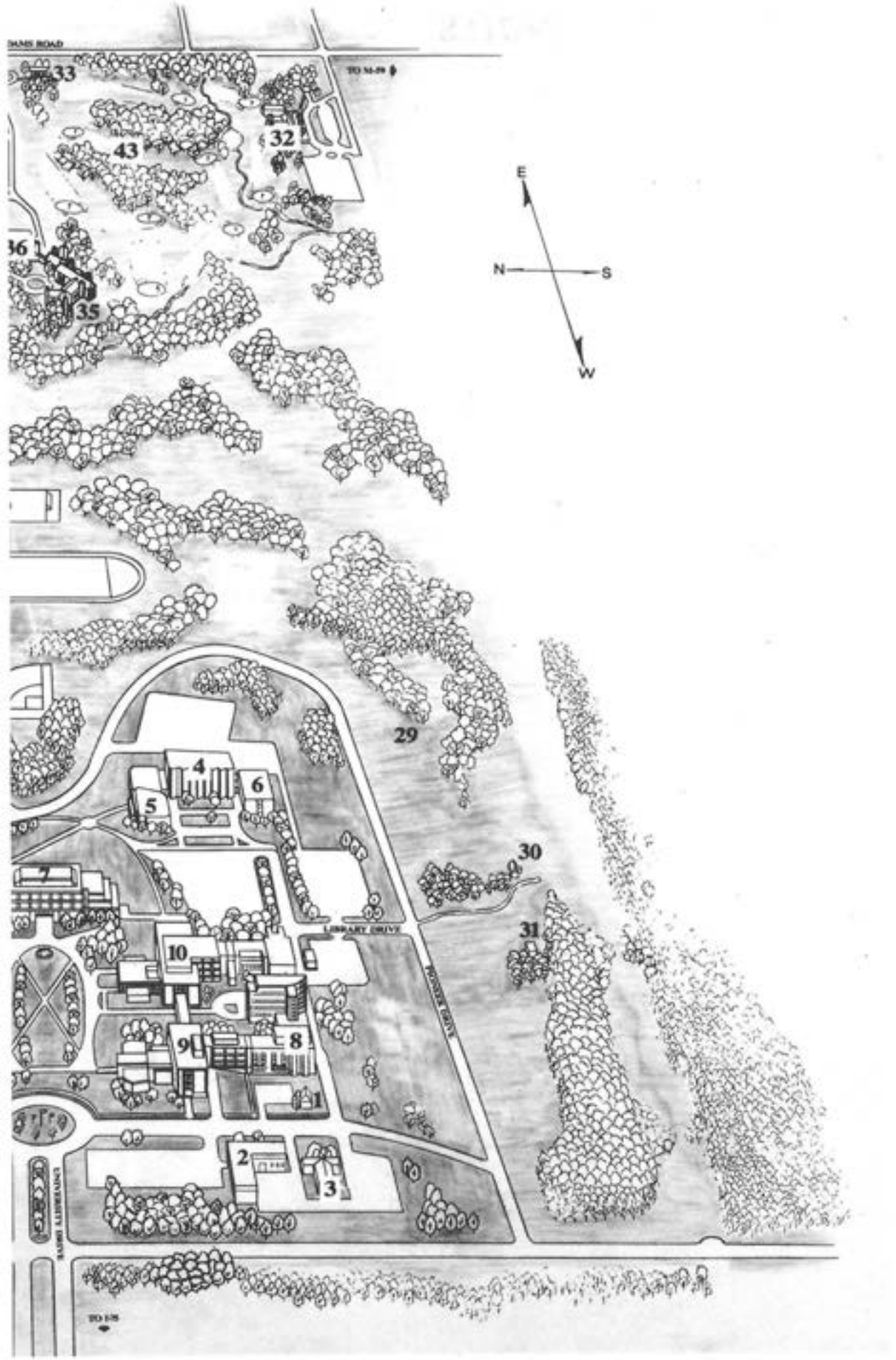
Total

University Requirements	
Writing Requirements	
College/School Requirements	
Major Requirements	
Total Credits	

OAKLAND UNIVERSITY

1. Campus Facilities and Operations
2. Public Safety and Service Building
3. Grounds/Maintenance
4. Varner Hall
5. Varner Recital Hall
6. Studio Theatre
7. Kresge Library
8. New science building (proposed)
9. Hannah Hall of Science
10. Dodge Hall of Engineering
11. South Foundation Hall
12. North Foundation Hall
13. Oakland Center
14. Wilson Hall
15. Meadow Brook Theatre & Art Gallery
16. Graham Health Center
17. Vandenberg Hall
18. Hamlin Hall
19. George T. Matthews Apartments (married student housing)
20. Hill House
21. Van Wagoner House
22. Fitzgerald House
23. Anibal House
24. Pryale House
25. Central Heating Plant
26. Lepley Sports Center
27. O'Dowd Hall
28. Purchasing Offices
29. Clinical Research Lab
30. Kettering Magnetics Lab
31. Observatory
32. Lowry Child Care Center
33. Golf Course Clubhouse
34. John Dodge House
35. Meadow Brook Hall
36. Carriage House
37. Sunset Terrace
38. Baldwin Memorial Pavilion
39. Trumbull Terrace
40. Meadow Brook Music Festival Ticket Office
41. Shotwell-Gustafson Pavilion
42. Meadow Brook Health Enhancement Institute
43. Katke-Cousins Golf Course
44. Pioneer Field (lower)
45. Pioneer Field (upper)




33
32
43
36
35
E
N
S
W
29
4
6
5
7
30
31
10
9
8
1
2
3

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES


Oakland
UNIVERSITY