DEPARTMENT OF MUSIC, THEATRE AND DANCE

315 VARNER HALL

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Chairperson: *Karl Boelter*

Professors emeriti: *Adeline G. Hirschfeld-Medalia, Stanley Hollingsworth*

Professors: *David Daniels, Carol Halsted, Flavio Varani*

Associate professors: *Susan Barrett, Karl Boelter, John Dovaras, Laurie Eisenhower, Robert Facko, Michael Gillespie, John Paul White*

Assistant professors: *Lettie Alston, Gregory Patterson, Karen Sheridan, Jacqueline Wiggins*

Visiting assistant professor: *Karen Wachsmuth*

Adjunct assistant professors: *Joyce Adelson, Janice Albright, Edith Diggory*

Lecturers: *Glenn Andersen, April Arabian-Tini, Carolyn Bybee, Frederic DeHaven, Suzanne Hanna, David Wilson*

Applied music instructors: *Joyce Adelson (piano), Janice Albright (voice), Keith Claeys (percussion), Douglas Cornelsen (clarinet), Frederic DeHaven (organ), Nadine DeLeury (cello), Edith Diggory (voice), Kirkland Ferris (bassoon), Paul Finkbeiner (jazz trumpet), John Hall (guitar), Rebecca Hammond (oboe), Maxim Janowsky (double bass), Ronald Kischuk (trombone), Daniel Maslanka (jazz percussion), Scott Petersen (jazz saxophone), Alayne Rever (saxophone), Elizabeth Rowin (violin, viola), Robert Sherman (tuba), Gordon Simmons (trumpet), Robert Utterbach (harpsichord), Flavio Varani (piano), John Paul White (voice), David Wilson (accompanist), Jeffery Zook (flute)*

Chief adviser: *David Daniels*

The Department of Music, Theatre and Dance offers the following programs: Bachelor of Arts with a major in music; Bachelor of Arts with a major in performing arts, which includes a specialty in theatre, dance or music theatre; Bachelor of Music with programs in music education, performance, composition or sacred music; and Master of Music with concentrations in performance, pedagogy, conducting, music education or composition. Liberal arts minors are offered in music, theatre or dance; a secondary teaching minor is offered in music.

The department offers student performance opportunities in dramatic productions, dance recitals, music ensembles and recitals, and music theatre.

Departmental honors

Departmental honors will be awarded for a combination of academic achievement (minimum 3.30 GPA), artistry in the major area of study and contribution to the operations of the department.

Degree Programs

Requirements for the liberal arts major in music, B.A. program

This degree is for students who wish a broad general education without a high degree of specialization in music. Students in this degree program may not use a music course to satisfy the university general education requirement in the arts. Students must successfully complete the departmental ear-training examination and must fulfill the events attendance requirement and solo performance requirement as described in the department's *Undergraduate Handbook*.

The following course work is required:

	Credits
Music Theory I, II: MUT 112, 114	6
Ear-training: I, II: MUT 113, 115	2
Music Theory III, IV: MUT 212, 214	6
Ear-training III, IV: MUT 213, 215	2
Music theory elective(s): a total of 4 credits of MUT courses 300 and above	4
Music in Society and Civilization I, II: MUS 120, 121	4
Western Music History and Literature: MUS 320	4
Music history electives: Two courses selected from MUS 323-337	4
Ensembles: Four semesters; two must use applied major	4
Applied music (may include conducting and up to 4 credits in keyboard techniques)	16
Language: Two years of a modern language or equivalent proficiency	4-16

Requirements for the liberal arts major in the performing arts, B.A. program

This degree is intended for students who wish to pursue careers in the general performing arts and who wish to specialize in dance, theatre or music theatre. Students must successfully complete the performance production requirement, the events attendance requirement and the senior interview as described in the department's *Undergraduate Handbook*. The following course work is required, with the core pertaining to all three specializations.

Core:	Credits
The Arts in Society: MTD 250	4
Elective from: MUS 250, 320; DAN 425; THA 301, 302, 305; AH 367; ENG 250, 302, 307, 332, 333, 375; HST 305, 388; PHL 312; AN 300, 307	4
Language numbered 115 or higher	4-8
Dance specialization:	
Stagecraft: THA 120 or Costume Craft: THA 121	2
Acting: Fundamentals: THA 110	2
Vocal Techniques: MUA 160 or Practical Musicianship: MUT 220	2
Ballet: DAN 400 (2 semesters)	4
Modern Dance: DAN 410 (2 semesters)	4
Dance Improvisation/Choreography I: DAN 170	2
Choreography II: DAN 372	4
Choreography III: DAN 472	4
Kinesiology for the Dancer: DAN 330	4
Creative Dance for Children: DAN 350 or Dance Pedagogy: DAN 495	4
Practicum: Rehearsal and Performance: DAN 376 (2 semesters)	2
Issues and Trends in 20th-Century Dance: DAN 425	4
Electives from: DAN 200, 300, 210, 310, 220, 320, 130, 373, 430, 490, 497	6
TOTAL	44
Theatre specialization:	
Stagecraft: THA 120 or Costume Craft: THA 121	2
Acting: Fundamentals: THA 110	2
Vocal Techniques: MUA 160 or Practical Musicianship: MUT 220	2
Theatre Ensemble: THA 220	2

Dance technique course	2
Acting: Realism: THA 310	2
Theatre History I, II: THA 301, 302	8
Stage Management: THA 330	2
Stage Manager Project: THA 331	2
Design electives from THA 320, 321, 322, 323	6-8
Directing: THA 400	4
Electives from: any THA course or DAN technique course	8-10
TOTAL	44

Music theatre specialization:

Stagecraft: THA 120 or Costume Craft: THA 121	2
Acting: Fundamentals: THA 110	2
Vocal Techniques: MUA 160	2
Applied voice: MUA 100-300	10
Music theory I: MUT 112	3
Ear-training I: MUT 113 (w/3.5 or better or proficiency)	1
Dance technique course	2
Theatre Ensemble: THA 220	2
Acting: Realism: THA 310	2
Opera Workshop: MUE 350 and/or Musical Theatre Workshop: MUE 351 (2 semesters)	2
Music ensemble electives from any MUE course(s)	2
Dance for the Musical Theatre: DAN 373	2
History and Performance of Music Theatre: THA 205	4
Electives from: any departmental course (MUA, MUE, MUS, MUT, DAN, THA)	8
TOTAL	44

Requirements for the Bachelor of Music degree

The Bachelor of Music degree is intended for students who wish preprofessional and professional preparation in music education, performance, composition and sacred music. Students must successfully complete the departmental ear-training examination and must fulfill the events attendance requirement and solo performance requirement as described in the department's *Undergraduate Handbook*. Requirements are as follows:

1. Music Education

The following curriculum for music education is currently being reviewed. See the department's *Undergraduate Handbook* for the most current information.

	Credits		
	Instrumental	Vocal (voice)	Vocal (piano)
Music Theory I, II: MUT 112, 114	6	6	6
Ear-training I, II: MUT 113, 115	2	2	2
Music Theory III, IV: MUT 212, 214	6	6	6
Ear-training III, IV: MUT 213,215	2	2	2
Music theory elective(s): a total of 4 credits of MUT courses 300 and above	4	4	4
Music in Society and Civilization I, II: MUS 120,121	4	4	4
Western Music History and Literature: MUS 320	4	4	4
Music history electives: Two courses selected from MUS 323-337	4	4	4
Applied major: normally an orchestral instrument	16	-	-
Applied major: voice	-	14	-

Applied major: piano	-	-	16
Vocal Techniques: MUA 160	2	2	2
Applied minor: voice	-	-	6
Applied minor: piano	-	2	-
Keyboard Techniques: MUA 171, 271, 371, 471	6	8	-
Accompanying: MUA 370	-	1	1
Accompaniment Practicum: MUE 390	-	1	1
Beginning instrument classes: MUA 251-259	14	4	4
Large Ensembles	7	7	7
Small Ensembles	1	1	1
Conducting: MUS 395	4	4	4
Advanced Instrumental Conducting: MUS 481	2	-	-
Advanced Choral Conducting: MUS 480	-	2	2
Elementary Instrumental Methods: MUS 400	2	-	-
Teaching Music in Elementary Schools: MUS 301	-	4	4
Secondary Instrumental Methods: MUS 404	2	-	-
The School Choral Program: MUS 403	-	2	2
Marching Band Techniques: MUS 405	2	-	-
Diction for Singers: ML 211, 212	-	8	8
Teaching Reading in the Content Areas: RDG 338 (538)	4	4	4
Educational Psychology for Secondary Teachers: FE 345	4	4	4
Methods of Teaching Secondary Education: SED 427	2	2	2
Internship in Secondary Education: SED 455	12	12	12
Introduction to the Exceptional Student: SE 501	4	4	4
Philosophy in Education: FE 602	4	4	4
Language (numbered 115 or higher)	4-8	4-8	4-8

2. Performance: piano

Music Theory I, II: MUT 112, 114	6
Ear-training I, II: MUT 113, 115	2
Music Theory III, IV: MUT 212, 214	6
Ear-training III, IV: MUT 213, 215	2
Music theory elective(s): A total of 4 credits of MUT courses 300 and above	4
Music in Society and Civilization I, II: MUS 120, 121	4
Western Music History and Literature: MUS 320	4
Music history electives: Two courses selected from MUS 323-337	4
Ensembles: Eight semesters; four must be accompanying	8
Applied major	32
Applied minor	8
Piano pedagogy: MUS 441	4
Repertoire (MUS 440 for pianists; organists consult an adviser)	4
Recommended: Conducting: MUS 395	4
Senior recital	
Language course (German, French or Italian recommended) numbered 215 or higher; *or* language course numbered 115 or higher plus Diction for Singers (ML 211-212, offered only in alternate years)	4-16

3. Performance: voice

Music Theory I, II: MUT 112, 114	6
Ear-training I, II: MUT 113, 115	2
Music Theory III, IV: MUT 212, 214	6
Ear-training III, IV: MUT 213, 215	2

Music theory elective(s): A total of 4 credits of MUT courses 300 and above	4
Music in Society and Civilization I, II: MUS 120, 121	4
Western Music History and Literature: MUS 320	4
Music history electives: Two courses selected from MUS 323-337	4
Ensembles: Eight semesters; four must use applied major; one semester must be accompanying	8
Applied major	32
Applied minor (must be keyboard unless excused by proficiency equivalent to MUA 471)	8
Repertoire	4
Recommended: Conducting: MUS 395	4
Senior recital	
Italian, French or German course numbered 115 or higher plus Diction for Singers (ML 211-212, offered only in alternate years)	8-16

4. **Composition**

Music Theory I, II: MUT 112, 114	6
Ear-training I, II: MUT 113, 115	2
Music Theory III, IV: MUT 212, 214	6
Ear-training III, IV: MUT 213, 215	2
Advanced theory: MUT 311, 312, 410, 411, 412	20
Composition: MUT 415	12
Music in Society and Civilization I, II: MUS 120, 121	4
Western Music History and Literature: MUS 320	4
Music history electives: Two courses selected from MUS 323-337	4
Ensembles: Six semesters; three must use applied major	6
Applied major	8
Keyboard: MUA 471 or equivalent proficiency	0-8
Conducting: MUS 395	4
Senior recital	
Language course (German recommended) numbered 215 or higher, *or* language course numbered 115 or higher plus Diction for Singers (ML 211-212, offered only in alternate years)	4-16

5. **Sacred Music**

Music Theory I, II: MUT 112, 114	6
Ear-training I, II: MUT 113, 115	2
Music Theory III, IV: MUT 212, 214	6
Ear-training III, IV: MUT 213, 215	2
Music theory elective(s): A total of 4 credits of MUT courses 300 and above	4
Music in Society and Civilization I, II: MUS 120, 121	4
Western Music History and Literature: MUS 320	4
Music history electives: Two courses selected from MUS 323-337	4
Ensembles: Eight semesters, four of which must be in accompanying	8
Applied major: Organ	16
Applied minor: Voice	8
Church Music I and II: MUS 360-361	4
Conducting: MUS 395	4
The School Choral Program: MUS 403	2
Performance Practices: MUS 423	2
Senior recital	0
ML 211-212 Diction for singers	8
German through GRM 115	4 or 8

Ensemble requirements

The ensemble requirements vary from one degree program to another. The requirements are given in terms of minimum number of semesters and minimum number of credits; at least half of these ensembles must use the applied major. A student may, of course, exceed these minima; in fact, the department recommends ensemble participation every semester, if possible. In order to encourage participation, an option of 0 credits is available for most MUE courses. Students must register for every departmental ensemble in which they participate.

Major standing

All students who begin studies toward any degree program of the department are assigned to the "general performing arts" curriculum while following the requirements of their specific, desired major. Approval to enter a specific program of the department is given by the departmental faculty by result of a major standing jury. During the semester in which the prospective major expects to complete 30 credits toward the desired degree program, the student should apply to the Department of Music, Theatre and Dance for major standing. A jury before the faculty is then scheduled. The nature of the jury depends on the intended degree program.

Those students who decide to begin studies toward a degree of the department after 30 credits have already been obtained, or transfer to Oakland with 30 credits or more, should apply for major standing during their first semester of departmental studies.

See the department's *Undergraduate Handbook* for more information.

To apply for major standing, students must:

1. Meet with the departmental adviser and prepare a program plan.
2. Complete an application for major standing and submit it with the completed program plan to the department office.
3. Perform a major standing jury in the applied specialization.

Auditions

Students who wish to be admitted to Oakland University as majors in the Department of Music, Theatre and Dance should audition for the department's faculty. They should contact the department to make arrangements for this audition. Students should be prepared to demonstrate proficiency in a specialty.

Auditions for music ensembles are held during the first few days of each semester. Auditions for other groups and theatrical productions are announced throughout the year.

Applied music juries

Music majors must play for a jury in their major performing medium at the end of each fall and each winter semester of applied study; in some cases, a jury in a performance minor may also be required. Failure to complete this requirement will result in an "I" (Incomplete) grade. For specific jury requirements, students should consult the head of their division.

Requirements for the secondary teaching minor in music

To earn the secondary teaching minor in music, students must complete 28 credits in music distributed as follows: 8 credits in music theory (MUT); 8 credits in applied music (MUA); four semesters (at least 4 credits) in music ensembles (MUE); and a planned program of 8 credits (to be approved by a music adviser) selected from MUS 250, 301, 320, 395, 400, 403, 404, 441, 491, 494 and 495. At least 14 of the 28 credits must be in courses numbered 300 or above.

Requirements for the liberal arts minor in music

To earn a minor in music, students must complete a minimum of 24 credits in music chosen in consultation with a department adviser as follows: 8 credits of music theory (MUT); 6 credits of music history (MUS 320, 323, 324, 325, 326, 327, 335, 336 and 337); 6 credits of applied music (MUA); and 4 credits of music ensemble (MUE).

Requirements for the liberal arts minor in theatre

To earn a minor in theatre, students must complete a minimum of 20 credits distributed as follows: 4 credits in THA 110 and 120 or 121; 4 credits from THA 300, 301 and 302; 4 credits from THA 210, 211, 213 and 310; 4 credits from THA 320, 321 and 322; and 4 additional credits from any theatre course(s) except THA 100.

Requirements for the liberal arts minor in dance

To earn a minor in dance, students must complete a minimum of 20 credits including 10 credits in DAN 170, 173 and 372; 4 credits from DAN 330 and 472; and 6 credits from any other DAN courses.

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

APPLIED MUSIC

"Applied music" refers to study of a given instrument or voice. There are two types of applied study—individual lessons and class group lessons. Both types involve an applied music fee in addition to tuition (see *Course Fees*).

Individual Lessons

Enrollment in individual lessons requires concurrent enrollment (any credit option) in an ensemble (MUE). The courses below have four course-level designations. All students begin their enrollment in an applied specialty at the 100 level. Student advancement to the higher levels is determined by the results of applied music juries. Except for the Bachelor of Arts in Performing Arts, two semesters at the 400 level are required in the major performing medium before graduation. The courses below have credit options of 1 or 2; or 1, 2 or 4. Four credits is the correct enrollment for piano study for students following the Bachelor of Music in Piano Performance, and 4 credits is the correct enrollment for voice study for students following the Bachelor of Music in Voice Performance. This 4 credit enrollment requires an hour lesson per week with an extensive demand for practice and literature study. For all other curricula, including minors and non-majors, the correct enrollment is 1 credit for a half-hour lesson per week and 2 credits for an hour lesson per week.

All courses of applied individual lessons may be repeated for credit.

The following courses are individual lessons and require a concurrent enrollment (any credit option) in an ensemble (MUE) with or without credit.

MUA 100 Voice (1, 2 or 4)
Prerequisite: MUA 160, Vocal Techniques (2 credits) for one semester.

MUA 200, 300, 400	Voice (1, 2 or 4)
MUA 101, 201, 301, 401	Piano (1, 2 or 4)
MUA 102, 202, 302, 402	Organ (1 or 2)
MUA 103, 203, 303, 403	Harpsichord (1 or 2)
MUA 104, 204, 304, 404	Violin (1 or 2)
MUA 105, 205, 305, 405	Viola (1 or 2)
MUA 106, 206, 306, 406	Violoncello (1 or 2)
MUA 107, 207, 307, 407	Double Bass (1 or 2)
MUA 108, 208, 308, 408	Flute (1 or 2)
MUA 109, 209, 309, 409	Oboe (1 or 2)
MUA 110, 210, 310, 410	Clarinet (1 or 2)
MUA 111, 211, 311, 411	Bassoon (1 or 2)
MUA 112, 212, 312, 412	French Horn (1 or 2)
MUA 113, 213, 313, 413	Trumpet (1 or 2)
MUA 114, 214, 314, 414	Trombone (1 or 2)

MUA 115, 215, 315, 415	Tuba (1 or 2)
MUA 116, 216, 316, 416	Timpani (1 or 2)
MUA 117, 217, 317, 417	Percussion (1 or 2)
MUA 118, 218, 318, 418	Harp (1 or 2)
MUA 119, 219, 319, 419	Guitar (classical) (1 or 2)
MUA 122, 222, 322, 422	Lute (1 or 2)
MUA 123, 223, 323, 423	Recorder (1 or 2)
MUA 124, 224, 324, 424	Saxophone (1 or 2)
MUA 130, 230, 330, 430	Piano (jazz) (1 or 2)
MUA 131, 231, 331, 431	Guitar (jazz) (1 or 2)
MUA 132, 232, 332, 432	Trumpet (jazz) (1 or 2)
MUA 133, 233, 333, 433	Saxophone (jazz) (1 or 2)
MUA 134, 234, 334, 434	Percussion (jazz) (1 or 2)
MUA 135, 235, 335, 435	Double Bass (jazz) (1 or 2)

MUA 149, 249, 349, 449 Applied Music (1 or 2)
May be used to increase the number of private lessons in the student's major or minor performing medium. Must be taken with one of the applied music courses above.

Group Lessons

MUA 160 Vocal Techniques (2)
Techniques of singing, including diction, breath control, projection and repertoire. This course is a prerequisite to private voice study. Preference for openings in this course is given to music majors.

MUA 171, 271, 371, 471 Keyboard Technique (2 each)
Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.
Prerequisite: Permission of instructor.

MUA 251	Beginning Violin and Viola Class (2)
MUA 252	Beginning Violoncello and Double Bass Class (2)
MUA 253	Beginning Flute and Single Reed Class (2)
MUA 254	Beginning Recorder Class (2)
MUA 255	Beginning Double Reed Class (2)
MUA 256	Beginning High Brass Class (2)
MUA 257	Beginning Low Brass Class (2)
MUA 258	Beginning Percussion Class (2)
MUA 259	Beginning Guitar Class (2)

MUA 361-362 Vocal Literature I and II (2 each)
A survey of literature for the voice with emphasis on historical style. MUA 361 covers the Middle Ages through the 19th century, with emphasis on German song. MUA 362 continues through the 19th and 20th centuries, emphasizing French, British and American.
Prerequisite: ML 212 (may be taken concurrently) and permission of instructor.

MUA 370 Accompanying (1)
To help the pianist acquire knowledge of the basic skills required in the ensemble. Representative vocal and instrumental compositions are studied; emphasis is on rehearsal techniques and performance.

MUA 373 Piano Tuning and Technology (2)
Basic skills in tuning and regulating a piano. Ability to set equal temperament as well as some discussion of historic temperaments.
Prerequisite: MUT 114.

MUSIC ENSEMBLES

Ensembles are open to all students by audition. May be repeated for credit. Students may preregister for the ensemble of their choice; auditions are held during the first week of classes for most ensembles.

MUE 301 University Chorus (0 or 1)
Performance of the large choral masterpieces from all music periods.

MUE 302 Community Chorus (0 or 1)
Festival-type mixed chorus for citizens of the surrounding communities who possess vocal experience. Performance of varied choral literature. Meets in the evening.

MUE 304 Oakland Chorale (0 or 1)
Performance of a wide range of choral chamber repertoire from Renaissance to the present.
Prerequisite: Permission of instructor.

MUE 307 University Drive (0 or 1)
A show ensemble presenting staged and choreographed shows. Emphasis on skill development in singing, style, stage presence, stage movement and microphone technique.
Prerequisite: Permission of instructor.

MUE 308 Meadow Brook Estate (0 or 1)
A show ensemble presenting staged and choreographed shows. Rigorous performance schedule in professional situations. Auditions are held prior to the beginning of the semester.
Prerequisite: Permission of instructor.

MUE 310 Vocal Improvisation Workshop (2)
A laboratory in vocal improvisation designed to increase skills in performing commercial and popular music.
Prerequisite: Permission of instructor.

MUE 315 Vocal Jazz Ensemble (0 or 1)
Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and microphone technique.
Prerequisite: Permission of instructor.

MUE 320 Pontiac-Oakland Symphony (0 or 1)
Orchestral performance of repertoire from the 18th, 19th and 20th centuries. Several concerts per year, on- and off-campus. Accompaniments for solo concertos and university choral groups. Membership by audition. Graded S/U.

MUE 329 Campus Band (0 or 1)
A non-auditioned instrumental ensemble designed to offer performance opportunities for non-majors and laboratory experiences for music majors.

MUE 331 Concert Band (0 or 1)
An ensemble of wind instruments performing standard concert band literature.
Prerequisite: Permission of instructor.

MUE 340 Afram Jazz Ensemble (0 or 1)
A study of traditional and contemporary literature for large jazz ensembles within the African-American cultural context. Both conceptualization of the material and improvisational techniques will be explored and defined.

MUE 341 Jazz Improvisation Workshop (2)
A performance practice laboratory designed to increase improvisational skills indigenous to jazz performance and to identify systematically and use stylistic characteristics of various jazz subcategories.

MUE 345 West African Drumming Ensemble (0 or 1)
The study and performance of drumming traditions as related to West African oral culture using authentic Ewe and Akan drums.

MUE 350 Opera Workshop (0 or 1)
Study and experience in various forms of operatic music theatre.
Prerequisite: Permission of instructor.

MUE 351 Musical Theatre Workshop (0 or 1)
Performance and study of repertory of the musical theatre.
Prerequisite: Permission of instructor.

MUE 360 Collegium Musicum (0 or 1)
Performance of Medieval, Renaissance and Baroque music in various vocal and instrumental combinations. Period instruments and performance practices are emphasized. Graded S/U.
Prerequisite: Permission of instructor.

MUE 370 Guitar Ensemble (0 or 1)
Performance practice and techniques of guitar literature involving two or more players.

MUE 371 Woodwind Ensemble (0 or 1)
Ensembles of three or more saxophones performing appropriate literature.
Prerequisite: Permission of instructor.

MUE 373 Percussion Ensemble (0 or 1)
Performance of music for various combinations of percussion instruments.
Prerequisite: Permission of instructor.

MUE 375 Piano Ensemble (0 or 1)
Class instruction in performance and repertory of multiple keyboard literature.
Prerequisite: Permission of instructor.

MUE 380 Chamber Music (0 or 1)
Performing ensemble of various instrumentations. A spectrum of appropriate music literature, medieval through contemporary.
Prerequisite: Permission of instructor.

MUE 390 Accompaniment Practicum (0 or 1)
Experience in piano accompaniment of solo and/or ensembles, vocal and instrumental. May be repeated once for credit.
Prerequisite: MUA 370.

MUSIC HISTORY, LITERATURE, APPRECIATION AND EDUCATION

MUS 100 An Introduction to Music (4)
An introduction to the techniques of listening to great music, and a study of its elements, forms and styles. Begins at the level of the student lacking previous musical experience. An elective for nonmusic majors. *This course satisfies the general education requirement in arts.*

MUS 120-121 Music in Society and Civilization I and II (2 each)
A survey of the arts and their societal roles throughout history and among diverse cultures with a focus on creating a context for understanding music and musical style. Primarily for music majors.

MUS 231 Studies in Orchestral Music (1 or 2)
Seminars, independent study and performance of orchestral music, including study of performance practices, theory, history and chamber music of various periods. Offered summer session.

MUS 250 World Music Survey (4)
Introduction to selected music cultures to acquaint the student with a variety of musical functions and styles at various places and times. Emphasis is on demonstrations via live performances by visiting lecturers and guest artists. May be taken twice for a total of 8 credits. *This course satisfies the university general education requirement in arts.*

MUS 251 Applied Music (1 or 2)
Independent study for freshmen and sophomores in the technique and literature of a performing medium. Offered spring and summer terms.
Prerequisite: Permission of department.

MUS 295 Independent Study (1, 2 or 4)
Normally for freshmen and sophomores.
Prerequisite: Permission of department.

MUS 301 Teaching Music in Elementary Schools (4)
Principles and practices of teaching general music in kindergarten through sixth grade. Emphasis will be on developing musical understanding through an interactive approach based on current trends in education and music education. One hour per week field experience is required.
Prerequisite: MUT 214.

MUS 318 Business of Music (4)
A survey of business techniques and procedures, laws, licensing and accounting practices in the music industry, and a study of career opportunities related to music.

MUS 320 Western Music History and Literature (4)
A survey of music from medieval through modern contemporary, primarily for music majors. *This course satisfies the university general education requirement in arts.*
Prerequisite: MUS 121 and MUT 114.

MUS 323 Music of the Renaissance (2)
Music history and literature of the Renaissance period.
Prerequisite: MUS 320.

MUS 324 Music of the Baroque Period (2)
Music history and literature of the Baroque period.
Prerequisite: MUS 320.

MUS 325 Music of the Classical Period (2)
Music history and literature of the Classical period.
Prerequisite: MUS 320.

MUS 326 Music of the Romantic Period (2)
Music history and literature of the Romantic period.
Prerequisite: MUS 320.

MUS 327 Twentieth Century Music (2)
A study of significant styles and composers from Debussy to the present.
Prerequisite: MUS 320.

MUS 335-336 History of Jazz (2 each)
A survey and historical study of the development of jazz, including significant periods and trends, stylistic analysis and aesthetic foundations.
Prerequisite: MUS 320.

MUS 337 Music of West Africa (2)
Study of the music and cultural traditions of West Africa and their influence on other cultures. Comparison with the other African musical traditions.
Prerequisite: MUS 320.

MUS 351 Commercial Music Seminar (4)
A study of commercial music careers and performance techniques for singers and instrumentalists.
Prerequisite: Sophomore standing.

MUS 353 Audio Techniques (2)
A performer-oriented study of microphones, voltage regulation, amplification, mixers, speakers and acoustical phenomena associated with sound recording and reinforcement.
Prerequisite: Sophomore standing.

MUS 360-361 Church Music I and II (2 each)
Study of liturgy and hymnology. Development of skill in service playing at the organ, chant accompaniment, modulation and improvisation. Combination of organ and choral repertoire for church service. Offered in alternate years.
Prerequisites for 360: MUT 312 and MUS 320.
Prerequisite for 361: MUS 360.

MUS 395 Conducting (4)
Basic techniques of conducting, including instrumental and choral. Participants elect to emphasize either instrumental or choral technique and will be assigned at least one hour per week as assistants in university performing groups or public school ensembles.
Prerequisite: MUT 214.

MUS 400 Elementary Instrumental Methods (2)
Provides practical information related to the teaching of elementary instrumental music. Develops strategies for creative learning. One hour per week field experience is required.
Prerequisite: MUT 214.

MUS 403 The School Choral Program (2)
Principles and practices for organizing and running a successful choral program in elementary school, middle school and high school: *e.g.*, recruiting, criteria for selection of repertoire, performance and management techniques. Emphasis on developing musical understanding through the performance experience. One hour per week field experience is required.
Prerequisite: MUS 395 or permission of instructor.

MUS 404 Secondary Instrumental Methods (2)
Provides practical information related to the teaching of middle school and high school instrumental music: *e.g.*, teaching strategies, repertoire, materials and techniques. Emphasis on developing musical understanding through the performance experience. One hour per week field experience is required.
Prerequisite: MUS 395 or permission of instructor.

MUS 405 Marching Band Techniques (2)
Provides practical information related to the organization and teaching of marching band. Topics include strategies and techniques for teaching, rehearsal, and student motivation. Introduction to show design and drill writing. One hour per week field experience is required.
Prerequisite: MUS 395 and MUT 214.

MUS 410 Introduction to Music Bibliography (2)
An introduction to basic research materials and methods in musicology.
Prerequisite: MUS 320 and a 400-level theory course.

MUS 440 Piano Master Class (2)
Class study of piano literature for stylistic characteristics and technical considerations for proper performance.
Prerequisite: Permission of instructor.

MUS 441-442 Music Pedagogy (4 each)
Principles of music instruction for the studio teacher. The first semester will be devoted to a survey of the field and to observation. The second semester will be devoted to supervised teaching.

MUS 451 Applied Music (1 or 2)
Independent study for juniors and seniors in the technique and literature of a performing medium. Offered spring and summer terms.
Prerequisite: Permission of department.

MUS 465 Performance Practices (2)
A study of the performing practices of music of earlier times. Content varies each semester. May be repeated a total of three times for credit with permission of instructor.
Prerequisite: Permission of instructor.

MUS 480 Advanced Choral Conducting (2)
Studies in advanced choral technique and literature with emphasis on problem solving and practical applications.
Prerequisite: MUS 395 or permission of instructor.

MUS 481 Advanced Instrumental Conducting (2)
Studies in advanced instrumental technique and literature with emphasis on problem solving and practical applications.
Prerequisite: MUS 395 or permission of instructor.

MUS 491 Directed Research in Music History (1 or 2)
Directed individual reading and research for advanced music history majors.
Prerequisite: MUS 320, a 400-level theory course and two courses from MUS 323-337.

MUS 494 Directed Research in Music Education (2 or 4)
Directed individual reading and research in technology of, innovation in, and psychology of music instruction.
Prerequisite: Two courses from MUS 301, 403 and 404.

MUS 495 Independent Study (1, 2 or 4)
Normally for juniors and seniors.
Prerequisite: Permission of department.

MUS 497 Apprentice College Teaching (2)
Supervised participation in teaching an undergraduate course in music, together with discussion of teaching methods and objectives.
Prerequisite: Permission of department.

MUS 499 Special Topics in Music (1, 2, 3 or 4)
Current topics and issues in music performance and literature.

MUSIC THEORY AND COMPOSITION

MUT 099 Rudiments of Music Theory (2)
An introduction to the basic elements of music, musical notation and ear-training. Intended for music majors who need a preparatory course to MUT 112.
Prerequisite: Placement exam.

MUT 112 Music Theory I (3)
Fundamentals of musical structure, form, analysis and style. Intended for music majors. Must be taken concurrently with MUT 113 according to results of placement exam.
Prerequisite: Placement exam or MUT 099.

MUT 113 Ear-training I (1)
An ear-training laboratory to accompany MUT 112.
Prerequisite: Placement exam.

MUT 114 Music Theory II (3)
Continuation of MUT 112. Must be taken concurrently with MUT 115.
Prerequisite: MUT 112. Corequisite: MUT 115.

MUT 115 Ear-training II (1)
An ear-training laboratory to accompany MUT 114.
Prerequisite: MUT 113 or placement exam.

MUT 212 Music Theory III (3)
Continuation of MUT 114. Must be taken concurrently with MUT 213.
Prerequisite: MUT 114. Corequisite: MUT 213.

MUT 213 Ear-training III (1)
An ear-training laboratory to accompany MUT 212.
Prerequisite: MUT 115.

MUT 214 Music Theory IV (3)
Continuation of MUT 213. Must be taken concurrently with MUT 215.
Prerequisite: MUT 212. Corequisite: MUT 215.

MUT 215 Ear-training IV (1)
An ear-training laboratory to accompany MUT 214.
Prerequisite: MUT 213.

MUT 220 Practical Musicianship (2)
An introduction to reading and writing through the study of musical terms, concepts and theoretical elements. Intended for non-majors.

MUT 260 Musical Composition for the Non-Major (2)
An introduction to the principles of composition and musical form with an emphasis on creating works for informal performance.

MUT 311 Musical Analysis and Form (4)
Techniques of analyzing works of various styles and periods with an emphasis on tonal music.
Prerequisite: MUT 214.

MUT 312 Tonal Counterpoint (4)
The contrapuntal style of the 18th century; composition and analysis.
Prerequisite: MUT 214.

MUT 314 Jazz Theory (4)
Jazz notation, arranging and composition.
Prerequisite: MUT 214.

MUT 410 Twentieth Century Techniques (4)
Compositional practices in the 20th century; composition and analysis.
Prerequisite: MUT 214.

MUT 411 Orchestration (4)
A study of the art of instrumental combination as applied to various ensemble applications, including full orchestra and band.
Prerequisite: MUT 214.

MUT 412 Modal Counterpoint (4)
The contrapuntal style of the 16th century. Analysis and composition in this style. Offered in alternate years.
Prerequisite: MUT 214.

MUT 414 Jazz Composition and Arranging (4)
Composition and arranging technique for jazz ensembles. Includes study of jazz notational systems, idiomatic jazz practice, standard jazz forms and orchestration for instruments and voice as used in jazz ensembles.
Prerequisite: MUT 214.

MUT 415 Composition (2)
Private lessons in composition and composition laboratory: studies, exercises and projects concerning creativity and craft in composing music. May be repeated for credit.
Prerequisite: Permission of instructor. MUT 312 is recommended.

INTERDISCIPLINARY PERFORMING ARTS

MTD 201 Performing Arts Experiences for Children (2)
An introduction to the performing arts designed to provide prospective teachers with a basis and background for integrating musical, theatrical and dance experiences into classroom curricula.

MTD 250 The Arts in Society (4)
An introduction to issues and concepts through an exploration of the artistic endeavors in specific cultures and historical time periods. A comprehensive approach to the arts will be involved in the study of relationships among the arts forms, with special emphasis on music, dance and drama.

THEATRE

THA 100 Introduction to Theatre (4)
Theatre as an art form. Topics include acting, directing, design, dramatic literature, theatre history, theory and criticism. Students will view selected plays. *This course satisfies the university general education requirement in arts.*

THA 110 Acting: Fundamentals (2)
Basic physical, vocal, emotional, and intellectual techniques for the actor. Improvisation as an initial step in the development of the actor's resources and as a key to creativity. May include some exploration of scripted scenes.

THA 120 Stagecraft (2)
Survey of techniques of scenery construction and stage lighting, including proper use of tools and hardware in these areas. Sixty hours of production work are required.

THA 121 Costume Craft (2)
Survey of techniques of costume construction, including proper use of tools and materials. Sixty hours of production work are required.

THA 205 History and Performance of Music Theatre (4)
A historical overview of opera and musical theatre.
Prerequisite: MTD 250.

THA 210 Stage Voice (2)
Development of the actor's understanding and practical command of vocal production, articulation and pronunciation.

THA 211 Stage Movement (2)
Studies in various forms of movement demanded of the actor, e.g., period movement, athleticism and agility, voice-movement integration, stage combat, etc. Topics may vary. May be repeated once for credit.

THA 213 Mime (2)
A studio course emphasizing active involvement in the techniques and art of mime. Classical and traditional forms are explored.

THA 220 Theatre Ensemble (1)
Participation in a student production under faculty supervision. A minimum of 60 hours. Students will maintain a running log, keeping track of their time and continuously evaluating their experiences. Credit is available for on-stage and backstage work. May be repeated for a total of 8 credits. Graded S/U.

THA 300 Play Reading and Analysis (4)
Consideration of a wide range of plays from historical, literary and theatrical perspectives. Study of the structures of dramas from various periods and genres and exploration of the creative process involved in transforming a written text into a live performance.

THA 301 Theatre History I (4)
Survey of theatre from its origins to about 1700, including dramatists, stages, productions, and acting. A few representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects. *This course satisfies the university general education requirement in arts.*

THA 302 Theatre History II (4)
Survey of theatre from about 1700 to the present, including dramatists, stages, productions, and acting. A few representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects. *This course satisfies the university general education requirement in arts.*

THA 310 Acting: Realism (2)
Scene study focusing on the requirements of realistic acting. Accompanying work on vocal and physical technique. May be repeated once for credit.
Prerequisite: THA 110.

THA 320 Scenic Design (4)
A study of the process of designing scenery for the stage, including conceptualization, drafting and rendering.
Prerequisite: THA 120.

THA 321 Lighting Design (4)
A study of the process of designing lighting for the stage, including conceptualization, instrumentation, plotting, hanging and focusing, cueing and board operation.
Prerequisite: THA 120.

THA 322 Costume Design (4)
A study of the process of designing costumes for the stage, including conceptualization, materials, rendering and construction. Some consideration of the history of fashion.
Prerequisite: THA 121.

THA 323 Stage Makeup (2)
A study of the process of designing makeup for the stage, including conceptualization, materials and application of two-dimensional designs.

THA 330 Stage Management (2)
A study of the duties and the organizational, communication and leadership skills required of the theatrical stage manager.
Prerequisite: THA 120.

THA 331 Stage Manager Project (2)
Student will serve as a stage manager for a departmental production under faculty supervision.
Prerequisite: THA 330.

THA 400 Directing (4)
Theory and practice in play directing. Script interpretation, casting, staging, rehearsal techniques and supervision of technical staff. Culminates in a final directing project.
Prerequisite: THA 120, 310 and one of the following: THA 320, 321, 322 or 323.

THA 401 Advanced Directing Project (2)
Direction of a lengthy one-act or full-length theatre piece under faculty supervision.
Prerequisite: THA 400; permission of instructor.

THA 410 Acting: Styles (2)
Focuses on the requirements of various acting and period styles. Continued work on vocal and physical technique. Topics may vary. May be repeated once for credit.
Prerequisite: THA 310.

THA 425 Advanced Design Projects (2)
Advanced student design projects in the areas of scenery, lighting, costume or makeup produced under faculty supervision. May be repeated for credit.
Prerequisite: Permission of instructor.

THA 470 Special Topics: Design Issues (2 or 4)
Group study of topics of special interest chosen by department faculty and students.

THA 480 Special Topics: Acting and Directing Issues (2 or 4)
Group study of topics of special interest chosen by department faculty and students.
Prerequisite: Will vary with topic; permission of instructor.

THA 481 Production Seminar (2)
Exploration of the theatrical production process focusing on conceptualization, collaboration and communication within the production team (directors, designers, actors, stage managers, technicians, etc.) Course may culminate in a theatrical performance.
Prerequisite: Permission of instructor.

THA 490 Independent Study (1, 2, 3 or 4)
Normally for juniors and seniors.
Prerequisite: Permission of instructor and department.

THA 491 Internship (2 or 4)
Experience working with professionals in a variety of performing arts settings.
Prerequisite: Junior standing and permission of supervising faculty.

THA 497 Apprentice College Teaching (2)
Supervised participation in teaching an undergraduate course in theatre, together with discussion of teaching methods and objectives.
Prerequisite: Permission of instructor and department.

DANCE

DAN 100, 200, 300, 400 Ballet (2)
Technique of classical ballet. Each course may be repeated for up to 8 credits.
Prerequisite: 100-level dance class or equivalent for courses above the 100 level.

DAN 110, 210, 310, 410 Modern Dance (2)
Technique of modern dance. Each course may be repeated for up to 8 credits.
Prerequisite: 100-level dance class or equivalent for courses above the 100 level.

DAN 120, 220, 320, 420 Jazz Dance (2)
Technique of jazz dance. Each course may be repeated for up to 8 credits.
Prerequisite: 100-level dance class or equivalent for courses above the 100 level.

DAN 130 Conditioning for Dance (1)
An application of specific body conditioning techniques for the dancer. May be repeated for up to 4 credits.

DAN 170 Dance Improvisation/Choreography I (2)
An exploration of movement through improvisation. Students will develop their own movements through dance ideas and problem solving.

DAN 173 Dance History and Appreciation (4)
A historical survey of the development of theatre dance in Western culture. Course materials presented through lecture, discussion, films, slides and viewing of live dance performances. *This course satisfies the university general education requirement in arts.*

DAN 221, 222 Tap Dance I and II (2 each)
Previous dance experience not required.

DAN 299 Dance Workshop (1, 2, 3 or 4)
A workshop designed to give students opportunities for participation in a variety of dance experiences led by performing artists. Normally offered in the spring and summer. Graded S/U.

DAN 330 Kinesiology for the Dancer (4)
Analysis of movement from an anatomical and mechanical point of view with emphasis on problems of dance technique. Also includes prevention and treatment of dance-related injuries.
Prerequisite: Three dance courses.

DAN 350 Creative Dance for Children (4)
Methods and styles of teaching dance to children within schools, community centers and private studios.
Prerequisite: None.

DAN 351 Children's Dance Theatre: Rehearsal and Performance (4)
Choreography, rehearsal and performance of a dance program for children that tours local elementary schools.
Prerequisite: Permission of instructor.

DAN 372 Choreography II (4)
Theory of dance composition through reading, discussion, observation and experimentation. Lab required.
Prerequisite: DAN 170.

DAN 373 Dance for Music Theatre (2)
An applied dance course that covers the techniques and styles of dance for music theatre prevalent from the 1920s until the present day. Class includes the study of voice and acting, as it pertains to music theatre, and a final performance.
Prerequisite: One dance course.

DAN 376 Practicum: Dance Rehearsal and Performance (1)
A technique- and performance-based laboratory course. Each student will participate in a dance performance during the semester, either as a performer or choreographer. May be repeated for a maximum of 8 credits. Graded S/U.
Prerequisite: Permission of instructor.

DAN 402 Advanced Ballet: Partnering (2)

DAN 403 Advanced Ballet: Pointe and Variation (2)

DAN 423 Historical Dance (2)
The study of Baroque, Renaissance and 19th century social dance styles. Course includes practical, theoretical and historical background.

DAN 425 Issues and Trends in 20th Century Dance (4)
Readings, videos, and discussions pertaining to dance today. Topics will range from post modernism, dance theory, dance notation, dance education, and multi-cultural influences.

DAN 430 Special Topics (1, 2 or 4)
Group study of current topics in dance. Three dance courses.
Prerequisite: Three dance courses.

DAN 441 Dance Pedagogy (4)
Theory and practice of teaching ballet and modern dance. Emphasis on instruction of adult-level classes.
Prerequisite: Permission of instructor.

DAN 470 Elementary Labanotation (4)
An introduction to Laban's system of movement notation.
Prerequisite: 12 credits in dance, including DAN 173.

DAN 472 Choreography III (4)
Continuation of DAN 372 at a more advanced level. Lab required.
Prerequisite: DAN 372.

DAN 480 Senior Recital (1 or 2)
A dance program choreographed and performed by a student in the final year of dance study.
Prerequisites: Senior standing, 24 credits in dance including DAN 173, 372, 376 and permission of instructor.

DAN 490 Independent Study (1, 2 or 4)
Permission of instructor. Graded S/U.

DAN 497 Apprentice College Teaching (2 or 4)
Supervised participation in teaching an undergraduate course in dance, together with discussion of teaching methods and objectives.
Prerequisite: Permission of instructor.

DEPARTMENT OF PHILOSOPHY

530 WILSON HALL

(810)370-3390
Fax: (810) 370-4208

Chairperson: *Richard W. Brooks*

Professors: *David C. Bricker, Richard J. Burke*

Associate professor: *Richard W. Brooks, John F. Halpin*

Assistant professors: *Paul R. Graves, Phyllis A. Rooney*

Associated faculty: *Professor Ronald M. Swartz (Education and Philosophy), Associate professors Marc E. Briod (Education and Philosophy), William Fish (Education and Philosophy)*

Chief adviser: *Richard J. Burke*

Philosophy is one of the oldest yet often least understood of the liberal arts. The philosopher is interested in all aspects of human life, searching for the greatest possible clarity concerning the most fundamental questions. There is no one kind of philosophy; rather, there are many kinds, each with its own value.

Philosophy has always served two functions. The first is speculative, the attempt to formulate illuminating generalizations about science, art, religion, nature, society and any other important topic. The second is critical, the unsparing examination of its own generalizations and those of others to uncover unfounded assumptions, faulty thinking, hidden implications and inconsistencies. The study of philosophy is designed to encourage a spirit of curiosity, a sensitivity toward the uses of words, and a sense of objective assessment toward oneself as well as others. Competence in philosophy is solid training for advanced study in such fields as law, government and public administration, as well as the ministry and teaching.

The Department of Philosophy offers programs of study leading to the Bachelor of Arts degree with a major in philosophy, a modified major in philosophy with an international studies minor (South Asian studies program) or a concentration in linguistics or religious studies, and a minor in philosophy.

Requirements for the liberal arts major in philosophy, B.A. program

To earn the Bachelor of Arts degree with a major in philosophy, a student must complete a minimum of 40 credits in philosophy, including:

1. One semester of logic (PHL 102, 202 or 370; PHL 202 is strongly recommended, especially for those considering graduate work in philosophy)
2. One semester of ethics (PHL 103, 316 or 318)
3. Two semesters in history of Western philosophy (PHL 204 and 206)
4. One semester of recent American philosophy (PHL 308, 329, 333, 437 or 475)
5. At least 20 credits in PHL courses numbered 300 or above.

A student may substitute other courses for any of the above with the permission of the department chairperson. Students planning to apply for graduate work in philosophy should meet with a faculty member to discuss additional appropriate course work.

Departmental honors

Departmental honors in philosophy are based upon three criteria: (a) general performance in philosophy courses, (b) written work in philosophy and (c) the ability to articulate philosophical ideas orally. First, students must achieve at least a 3.50 grade point average in philosophy courses. Second, those who do so and want to be considered for departmental honors should submit an example of their philosophical writing to the department chairperson early in the semester in which they expect to graduate. Normally this would be a substantial paper written in PHL 395, but two or three papers written in other philosophy courses will be acceptable. Third, if this work is judged to be of sufficiently high quality, it will be read by the rest of the department, and a conference with the student will be arranged to give him or her an opportunity to discuss the paper (or papers) further with the faculty. The decision to award honors will then be made by the faculty based on all three criteria.

Requirements for a modified major in philosophy with an international studies minor (South Asian studies program), linguistics or religious studies concentration, B.A. program

Students with modified majors in philosophy must have a minimum of 24 credits in philosophy, including 12 credits in courses numbered 300 or above; these courses must include the following:

1. One semester of logic (PHL 102, 202 or 370)
2. One semester of ethics (PHL 103, 316 or 318)
3. One semester of metaphysics/epistemology (PHL 204, 205, 206, 308, 329, 333, 340, 401 or 437).

In addition they must meet the following requirements:

Those minoring in *international studies* (South Asian Studies program) must include PHL 352 (Indian Philosophy).

Those concentrating in *linguistics* must include PHL 475 (Philosophy of Language).

Those concentrating in *religious studies* must include PHL 325 (Philosophy of Religion); they are encouraged to take PHL 350 (Philosophies and Religions of Asia).

For further information about a minor in international studies, see the Center for International Programs section; for information about concentrations in linguistics see the Department of Linguistics; for religious studies, see Other Academic Options, Concentration in Religious Studies.

Requirements for the liberal arts minor in philosophy

To earn a minor in philosophy, students must complete a minimum of 20 credits in philosophy, including:

1. One semester of logic (PHL 102, 202 or 370)
2. One semester of ethics (PHL 103, 316 or 318)
3. One semester of metaphysics/epistemology (PHL 204, 205, 206, 308, 329, 333, 340, 401, 437 or 475)
4. At least 8 credits in courses numbered 300 or above.

Departmental course prerequisites

In general, 100-level courses presuppose no prior college experience, 200-level courses presuppose some, 300-level courses require at least one prior philosophy course or junior standing, and 400-level courses are primarily for students majoring in philosophy. However,

strict prerequisites have been kept to a minimum to encourage non-majors to take philosophy courses as electives.

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

PHL 101 Introduction to Philosophy (4)
Study of the main types and problems of Western philosophy. Readings are chosen to illustrate the development of Western thought from the ancient Greeks to the present. Offered every semester. *This course satisfies the university general education requirement in Western civilization.*

PHL 102 Introduction to Logic (4)
The relationship between conclusions and statements given in support of them. In addition to elementary deductive and inductive logic, topics may include analysis of ordinary arguments, argument by analogy and informal fallacies. Offered every semester. *This course satisfies the university general education requirement in mathematics, logic and computer science.*

PHL 103 Introduction to Ethics (4)
Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester. *This course satisfies the university general education requirement in Western civilization.*

PHL 202 Introduction to Symbolic Logic (4)
Formal or symbolic logic is a study of what makes deductive arguments valid, employing symbols to represent sentences, words, phrases, etc. in order to reveal the formal structure of the arguments. Offered every year. *This course satisfies the university general education requirement in mathematics, logic and computer science.*

PHL 204, 205, 206 History of Western Philosophy (4 each)
The development of systematic philosophical thought in the Western world from its beginning in the Mediterranean region to 1800 A.D. The three courses are PHL 204, Classical Greek Philosophy, PHL 205, Hellenistic and Medieval Philosophy, and PHL 206, Early Modern Philosophy. Each course may be taken separately, although together they present a continuous development. *These courses satisfy the university general education requirement in Western civilization.*

PHL 300 Topics in Philosophy (4)
One philosophical topic or problem at an intermediate level of difficulty. Topic to be announced in the *Schedule of Classes* for each semester.
Prerequisite: One philosophy course.

PHL 301 Human Nature (4)
Identical with HRD 301.

PHL 302 Ethics and Personal Crises (4)
Identical with HRD 302.

PHL 305 Philosophy of Gender (4)
Philosophical issues relating to gender are explored. Different approaches toward dealing with sexism will be examined, as part of an ongoing analysis of what constitutes human nature, freedom, equality, and the relationship between the individual and the state.
Prerequisite: One course in philosophy or in women's studies.

PHL 307 European Philosophy since Kant (4)
Among the major philosophers included are Hegel, Marx, Nietzsche and Sartre. Several types of Marxism and existentialism will be distinguished and their influence in this country will be discussed. Offered every two years.
Prerequisite: One philosophy course.

PHL 308 Twentieth Century British and American Philosophy (4)
The issues that have dominated Anglo-American philosophy in the 20th century. The course will trace the history that has led Americans and Britons to look at philosophy in a new way, appropriate to our scientific world-view.
Prerequisite: One course in logic (PHL 202 recommended) or PHL 206.

PHL 310 Philosophy of Rhetoric (4)
The problem of "objectivity," the distinction between persuasion and proof, and the consequences of denying such a distinction. Readings include Plato's *Gorgias*, Aristotle's *Rhetoric*, and modern discussions of rhetoric and society. Offered every other year. Identical with COM 310.
Prerequisite: Junior standing.

PHL 311 Philosophy of Peace and War (4)
Philosophical issues related to peace and war, including: just war theory, nuclear weapons, international conventions and non-violence as a strategy of conflict resolution. Offered every two years.
Prerequisite: One philosophy course or junior standing.

PHL 312 Aesthetics (4)
The nature of aesthetic experience and aesthetic judgment in the appreciation of nature and art. Major theories of the creation and structure of works of art, and the logic and semantics of aesthetic judgment. Offered every other year.
Prerequisite: One philosophy course, or a course in art, music or literature.

PHL 316 Ethics in Business (4)
Review of basic ethical theory, and application to typical moral problems in business practices and institutions.
Prerequisite: Junior standing.

PHL 318 Ethics and the Health Sciences (4)
Central ethical issues in modern health care and research. Included are the distribution and allocation of health resources, the right to life and death, "informed consent" and eugenics. Offered every other year.
Prerequisite: Junior standing.

PHL 319 Philosophy of Law (4)
The nature of law and legal obligation, with emphasis on the relation of law, coercion and morality. Attention is also given to such issues as the nature of legal reasoning, the justifiability of civil disobedience and the justification of punishment. Offered every other year.
Prerequisite: Junior standing; PHL 103 or PS 241 recommended.

PHL 321 Political Philosophy (4)
The meanings of central concepts in political philosophy, such as justice, freedom and authority are examined through readings in classical political philosophers and crucial problems. Offered every other year.
Prerequisite: One philosophy course or junior standing; PHL 103 strongly recommended.

PHL 325 Philosophy of Religion (4)
Examination of arguments for and against the existence of God, the nature of religious language, and relations between religion and philosophy. Offered every other year. Identical with REL 325.
Prerequisite: One philosophy course or junior standing.

PHL 329 Philosophy of Science (4)
Philosophical problems arising from critical reflection on the sciences. Typical topics: the structure of scientific explanation, the nature of scientific laws and theories, causality and confirmation. Offered every other year.
Prerequisite: One course in philosophy or one in natural science.

PHL 330 Topics in the Philosophy of Science (4)
Specialized topics such as philosophy of biology, philosophy of the social sciences, philosophy of technology, or the history and philosophy of science will be offered periodically. Topic to be announced in the *Schedule of Classes*.
Prerequisite: Junior standing and one course in philosophy or consent of instructor.

PHL 333 Theories of Knowledge (4)
Critical examination of knowledge claims and of the types of justification given in their support. Typical topics: skepticism, empiricism, rationalism, believing and knowing, intuition and limits of knowledge. Offered every other year.
Prerequisite: One philosophy course; PHL 206 recommended.

PHL 340 Metaphysics (4)
Study of selected influential attempts to characterize the basic features of the world. Emphasis on reformulations of metaphysical problems in the light of modern advances in scientific knowledge. Offered every other year.
Prerequisite: One philosophy course; PHL 204 recommended.

PHL 350 Philosophies and Religions of Asia (4)
The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments. Offered every other year. Identical with REL 350.
Prerequisite: One philosophy course or junior standing.

PHL 352 Indian Philosophy (4)
The presuppositions and doctrines of India's major philosophic systems. Realistic, idealistic, pluralistic, dualistic and monistic systems will be considered, with some reference to contemporary developments. Offered every other year.
Prerequisite: PHL 350 or IS 240.

PHL 370 Advanced Symbolic Logic (4)
Standard first-order symbolic logic, emphasizing quantification theory and including identity theory and logical semantics. The logical system is approached both as a formal system and as a theoretical analysis of human reasoning. Offered every other year.
Prerequisite: PHL 102 or 202, or CSE 130, or MTH 012 or equivalent.

PHL 390 Directed Readings in Philosophy (2)
Tutorial on a topic not included in regular courses, primarily (but not exclusively) for majors. Students should consult with the department chairperson before approaching a faculty member with a topic. Graded S/U.
Prerequisite: One philosophy course at Oakland and written permission of instructor; junior standing.

PHL 395 Independent Study in Philosophy (4)
Tutorial on a topic not included in regular courses, primarily (but not exclusively) for majors. Students should consult with the department chairperson before approaching a faculty member with a topic. In addition to reading and consultation, the student will write a substantial term paper.
Prerequisite: One philosophy course at Oakland and written permission of instructor; junior standing.

PHL 401 Study of a Major Philosopher (4)
A study of the works of one major philosopher. The specific philosopher will vary, but courses on Plato, Aristotle and Kant will be offered every few years. May be repeated for credit.
Prerequisite: One philosophy course; PHL 204, 205, 206, 307 or 308 recommended, whichever is relevant.

PHL 437 Philosophy of Mind (4)
Selected topics or works in the philosophical literature about mind. Some topics are: the nature of psychological explanation, the relation of mind and body, thinking, emotions, concepts, consciousness and remembering. Offered every other year.
Prerequisite: One philosophy or one psychology course; junior standing.

PHL 465 Seminar on a Philosophical Topic (4)
One philosophical topic or problem at an advanced level of difficulty, normally requiring considerable background in philosophy. Topic and prerequisites to be announced in the *Schedule of Classes* for each semester.

PHL 475 Philosophy of Language (4)
Philosophical theories of natural language structure. Emphasis on views about what meaning is and how we are to explain our ability to communicate with one another. Offered every other year. Identical with LIN 475.
Prerequisite: Junior standing; LIN 207 or one course in logic (PHL 202 strongly recommended).

PHL 497 Apprentice College Teaching (4)
Open to a well-qualified philosophy student who is invited by a faculty member to assist in a regular college course, usually as preparation for a career as a professor of philosophy.

DEPARTMENT OF PHYSICS

201 HANNAH HALL
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Chairperson: *Norman Tepley*

Professors emeriti: *John M. McKinley, Ralph C. Mobley, Paul A. Tipler, Robert M. Williamson*

Professors: *Beverly Berger, Michael Chopp, Abraham R. Liboff, Norman Tepley*

Associate professors: *Andrei Slavin, Gopalan Srinivasan, W. D. Wallace*

Assistant professors: *David Garfinkle, Uma Devi Venkateswaran, Yang Xia*

Adjunct professors: *Carl Bleil, Adrian Kantrowitz, Paul D. Stein, K.M.A. Welch*

Adjunct assistant professors: *Jack E. Juni, Robert A. Knight, Bryan P. Shumaker*

Adjunct professors of medical physics: *Sou-Tung Chiu-Tsao, Peter M. Corry, Howard J. Dworkin, Jae Ho Kim, Harold Portnoy*

Adjunct associate professors of medical physics: *Kenneth F. Koral, S. David Nathanson, Joseph S. Rosenshein, Joe P. Windham*

Adjunct assistant professors of medical physics: *Elwood P. Armour, Elsa R. Beck, Stephen L. Brown, Ray A. Carlson, James R. Ewing, Yong J. Lee*

Lecturers: *Sally K. Daniel, Lee J. Pritchard*

Chief adviser: *W. D. Wallace*

Courses within the Department of Physics are grouped into two categories — preprofessional career programs and experiences in science for students with broad interests in contemporary human culture. The latter are strongly recommended for students planning any of a wide range of careers, including law, business, criminology, art history, music, government, education and journalism. High school students intending to major in physics should refer to the *Admissions* section of the catalog for specific preparation requirements.

Programs of study lead to the Bachelor of Science degree with majors in physics, medical physics and engineering physics, Bachelor of Arts degree with a major in physics, Master of Science degree in physics, and Doctor of Philosophy degree in biomedical sciences with specialization in medical physics.

The Bachelor of Science in physics is intended for students who plan to become professional scientists. It qualifies students for graduate studies in physical sciences or research positions in government and industry. Students pursuing this degree should consult with faculty members on different available specialties.

The Bachelor of Arts in physics is primarily designed for students who desire a broader, less professionally specialized background in physics. The minor in physics is available for students who want to supplement their work in other fields with an introduction to physics. A secondary teaching minor in physics is available.

The Bachelor of Science in medical physics is based on a group of physics courses plus relevant biology, chemistry and mathematics courses. In their senior year, these students take "Physics of Radiology" and "Physics of Nuclear Medicine."

The Bachelor of Science in engineering physics, which is offered jointly with the School of Engineering and Computer Science, is intended for well-qualified students who seek a broad education in physics and mathematics along with basic preparation in engineering.

Advising

Chief adviser: *W.D. Wallace*

Advisers in the various physics fields are professors David Garfinkle (astronomy), Michael Chopp (medical physics), Abraham R. Liboff (biophysics), Andrei Slavin (engineering physics, geophysics), Gopalan Srinivasan (industrial physics, electronics) and W.D. Wallace (secondary teaching). Independent research projects are available in each area.

Requirements for the liberal arts major in physics, B.A. program

To earn the Bachelor of Arts degree with a major in physics, students must complete:

1. A minimum of 32 credits in physics, with at least 22 credits in courses numbered above 200.
2. 20 additional credits in chemistry, mathematics and physics, but not CHM 300.

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

To earn the Bachelor of Science degree with a major in physics, students must complete:

1. 20 required credits in physics (PHY 151, 152, 158, 317, 351, 371).
2. A minimum of 22 elective credits in physics at or above the 200 level, including at least 2 credits of laboratory course work. PHY 361 and 381 are strongly recommended for students planning graduate work in physics.
3. MTH 154, 155, 254 and either MTH 256 or APM 257.
4. 10 credits of chemistry at a level not below CHM 144, but not CHM 300.

Requirements for the major in medical physics, B.S. program

To earn the Bachelor of Science degree with a major in medical physics, students must complete:

1. PHY 151, 152, 158, 317, 318, 341, 347, 351, 371, 372, 381, 441, 442, 443 and 444.
2. MTH 154, 155, 254, STA 226 and APM 257.
3. CHM 144, 145, 147-148 plus 4 additional credits at a level not below CHM 144 (CHM 201 may be taken for credit, but not CHM 300).
4. BIO 111, 205 and 207.

Secondary Teacher Education Program (STEP): Physics

The Secondary Teacher Education Program (STEP) at Oakland University is an extended program of study leading to certification. Students in this program may complete the requirements for a B.A. degree in physics as listed below or may complete the requirements for the B.S. degree, which requires 14 additional credits.

1. PHY 151,152, 158, 317, and 371 (16 credits)
2. 12 credits chosen from: PHY 325, 331, 341, 351, 361, 366, 372, 381, 421
3. 4 credits chosen from: PHY 306, 318, 347, 490

4. MTH 154, 155 and APM 257 (11 credits)
5. CHM 144, 145 and CHM 147-148
6. 4 credits of biology at or above the level of BIO 111, but not BIO 300.
7. 4 credits of earth science: PHY 106, 107, 307 or 308
8. 4 credits relating science, technology, and society: AN 300; ENV 308, 311, 312; PHY 115, 127.

A program in STEP must include a 20-24 hour secondary teaching minor and a sequence of undergraduate course work in education to include SED 300/301, FE 345, RDG 538 and SED 427 (11 credits). Extended study including SED 428, 455; SE 501 and FE 602 (26 credits) is also required. Further details on program and admission requirements and procedures can be found in the School of Education and Human Services portion of the catalog and by consulting advisers in the Department of Physics and the School of Education and Human Services Advising Office (472 O'Dowd Hall, 370-4182).

Requirements for the major in engineering physics, B.S. program

Coordinators: *Andrei Slavin (Physics), Hoda Abdel-Aty-Zohdy (Engineering)*

To earn the Bachelor of Science degree with a major in engineering physics (128 credits), students must complete:

1. MTH 154, 155, 254; and APM 257.
2. CHM 144 and 145 (or CHM 164 and 165).
3. PHY 151, 152, 158, 317, 351, 361 and 371, plus one of the following: PHY 331, 366, 381 or 472.
4. CSE 131 and 171; EE 222 and 326; ME 241; and SYS 317 and 325.
5. A professional option typically consisting of two courses plus a related engineering design elective course.
6. At least 7 to 8 credits from the following list: MTH 256; APM 263; PHY 318, 331, 366, 372, 381, 418, 472, 482; EE 345, 351, 378, 384; ME 331, 361; or any 400-level EGR, EE, ME or SYS courses.
7. Free electives (7 to 8 credits), which may be used to satisfy writing proficiency. For limitations on free electives see the School of Engineering and Computer Science policy on free electives.

Students in this program are not required to complete the college distribution requirement of the College of Arts and Sciences. For further information about this program, including professional options, see the section of this catalog for the School of Engineering and Computer Science, Engineering Physics program.

In addition to the previously stated requirements, satisfactory completion of the program requires an average grade of at least 2.0 in the mathematics, science, engineering and computer science courses taken to meet program requirements.

Departmental honors

Departmental honors may be awarded to students on the basis of high academic achievement and either independent research or meritorious service to the Department of Physics.

Requirements for the liberal arts minor in physics

To earn a minor in physics, students must complete a minimum of 20 credits in physics, including PHY 101-102 or 151-152, 158 and at least 8 credits in physics courses numbered 300 or above.

Requirements for the secondary teaching minor in physics

To earn a secondary teaching minor in physics, students must complete PHY 101-102 or 151-152, 158 and 10 credits in physics courses numbered 300 or above, including PHY 371. Non-science majors must complete an additional 4 credits in science for a total of 24 credits.

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

PHY 101 General Physics I (4)
Mechanics, heat, mechanical waves and sound. Calculus is not required. Offered fall and winter.
Prerequisite: High school algebra and trigonometry or equivalent. *Satisfies university general education requirement in natural science and technology.*

PHY 102 General Physics II (4)
Electricity and magnetism, light, relativity, atomic and nuclear physics. Offered fall and winter.
Prerequisite: PHY 101.

Each of the following courses is designed for nonscience majors.

PHY 104 Astronomy: The Solar System (4)
The sun, planets, space travel, the search for extraterrestrial life. Offered fall only. *This course satisfies the university general education requirement in natural science and technology.*

PHY 105 Astronomy: Stars and Galaxies (4)
Nature and evolution of stars, the Milky Way and other galaxies, cosmology. Offered winter only. *This course satisfies the university general education requirement in natural science and technology.*

PHY 106 Earth Sciences (4)
The earth as a planet. Topics include: origin, history, orbit, gravity, rocks and minerals, earthquakes, the interior and the theory of continental drift. Offered fall only. *This course satisfies the university general education requirement in natural science and technology.* Identical with GEO 106.

PHY 107 Physical Geography (4)
A description of the physical details of the earth's surface, including: time and the rotating earth; place in terms of position, elevation, and direction; U.S. geography; mountains, rifts, islands, and deserts; methods of navigation; map reading; weather in terms of air masses, fronts, and storms; the geomagnetic field; the earth's resources. *This course satisfies the university general education requirement in natural science and technology.* Identical with GEO 107.

PHY 115 Energy (4)
Basic physical principles of energy, sources, transmission and distribution. Political, economic and ecological considerations.
Prerequisite: High school algebra.

PHY 125 The Physics of Music (4)
Lectures and experiments on the nature of vibrations, waves and sound as applied to musical instruments and scales, voice, hearing, room acoustics and electronic music. Offered fall only. *This course satisfies the university general education requirement in natural science and technology.*
Prerequisite: High school algebra.

PHY 127 Human Aspects of Physical Science (4)
Primarily for the student wishing to explore the interaction of the physical and social sciences. Format varies to reflect the impact of physics on contemporary life, particularly on politics, economics and behavior, as well as environment and well-being. Offered winter only. *This course satisfies the university general education requirement in natural science and technology.*
Prerequisite: High school algebra.

PHY 131 The Physics of Cancer, Stroke, Heart Disease, and Headache (4)
The physical basis for a variety of diseases and disorders, as well as diagnostic and therapeutic techniques will be discussed by a number of medical physics faculty and guest lecturers.
Prerequisite: High school algebra.

The following courses are designed primarily for the physics major and for majors in the other sciences and engineering.

PHY 151 Introductory Physics I (4)
Classical mechanics and thermodynamics. For science, mathematics and engineering students. Offered fall and winter. *This course satisfies the general education requirement in natural science and technology.*
Prerequisite: MTH 154.

PHY 152 Introductory Physics II (4)
Sound, light, electricity and magnetism. Offered fall and winter.
Prerequisite: PHY 151. Corequisite: MTH 155.

PHY 158 General Physics Laboratory (2)
Elementary experiments in mechanics, heat, sound, electricity and optics. Offered fall and winter.
Prerequisite: PHY 101 or 151. Corequisite: PHY 102 or 152.

PHY 290 Introduction to Research (2 or 4)
Independent study and/or research in physics for students with no research experience.
Prerequisite: Written agreement of a physics faculty supervisor.

PHY 304 Astrophysics I (4)
Application of elementary physics to the study of planets, stars, galaxies and cosmology. Offered every other year in fall only.
Prerequisite: PHY 152 or 102, and MTH 155.

PHY 305 Astrophysics II (4)
Continuation of PHY 304. Offered every other year in winter only.
Prerequisite: PHY 304.

PHY 306 Observational Astronomy (2)
A lecture/laboratory course using the Oakland University observatory and providing basic training in astronomical techniques.
Prerequisite: PHY 158; or PHY 104 or 105 and permission of instructor.

PHY 307 Geophysics (4)
The application of physics concepts to the study of the earth, gravity and its anomalies, geomagnetism, earth-sun energy, geochronology and seismic wave propagation. Offered every other year in fall only.
Prerequisite: PHY 152 or 102, and MTH 155. PHY 106 highly recommended.

PHY 308 Physical Oceanography (4)
Physical oceanography and meteorology; composition and structure of the atmosphere and oceans. Interactions of sea water with the atmosphere, the continents and man. Offered every other year in winter only.
Prerequisite: PHY 152 or 102, and MTH 155. PHY 107 highly recommended.

PHY 317 Modern Physics Laboratory (2)
Optics and atomic physics experiments. Offered fall only.
Prerequisite: PHY 158. Corequisite: PHY 371.

PHY 318 Nuclear Physics Laboratory (2)
Nuclear physics experiments. Offered winter only.
Prerequisite: PHY 158. Corequisite: PHY 372.

PHY 325 Biophysical Science I (4)
Lecture course emphasizing the physics of living systems: thermodynamics in biology, information theory, theories of aging, biomolecular structure, nerve conduction, radiation biology. Offered fall only.
Prerequisite: PHY 152 and either MTH 122 or 154, and physical therapy major.

PHY 326 Biophysical Science II (4)
Lecture course presenting application of the physical laws to operation of modern biophysical instruments; the electron microprobe, ultracentrifuge, spectrometer, laser light scattering, optical and x-ray diffraction and acoustic probe. Offered winter only.
Prerequisite: PHY 152 or 102, and MTH 155.

PHY 331 Optics (4)
Geometrical optics, optical instruments, wave theory of reflection, refraction, interference, diffraction and polarization of light. Offered winter only.
Prerequisite: PHY 152 or 102, and MTH 155. Corequisite: MTH 254.

PHY 341 Electronics (4)
Electronics for scientists, circuit theory, transistors, power supplies, linear amplifiers, oscillators. Offered winter only.
Prerequisite: PHY 158 and MTH 155, and either PHY 152 or 102. Concurrent enrollment in PHY 347 is recommended.

PHY 347 Electronics Laboratory (2)
Circuits and electronics experiments. Offered winter only.
Corequisite: PHY 341.

PHY 351 Intermediate Theoretical Physics (4)
Topics and techniques common to intermediate physics courses. Includes analytical and numerical (computer) solution techniques, DIV, GRAD, CURL and Fourier analysis. Offered fall only.
Prerequisite: PHY 152 or 102, and MTH 155.

PHY 361 Mechanics I (4)
Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies. Offered fall only.
Prerequisite: PHY 152 or 102, and MTH 254.

PHY 366 Vibrations and Waves (4)
Oscillations; mechanical waves in one, two and three dimensions; sound.
Prerequisite: PHY 152, MTH 155.

PHY 371 Modern Physics (4)
Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles. Offered fall only.
Prerequisite: PHY 152 or 102, and MTH 155; concurrent enrollment in PHY 317 is recommended.

PHY 372 Nuclear Physics (4)
Radioactivity, interaction of radiations with matter, accelerators, nuclear reactions, fission and fusion. Offered winter only.
Prerequisite: PHY 102 or 152, and MTH 155; concurrent enrollment in PHY 318 is recommended.

PHY 381 Electricity and Magnetism I (4)
Maxwell's equations and the experimental laws of electricity and magnetism. Potential theory, boundary conditions on the electromagnetic field vectors, field energy. Dielectrics, conductors and magnetic materials. Offered winter only.
Prerequisite: PHY 351 and MTH 254. APM 257 desirable.

PHY 400 Undergraduate Seminar (1)
Graded S/U.

PHY 405 Special Topics (2, 4 or 6)
Prerequisite: Permission of department.

PHY 418 Modern Optics Laboratory (2)
Laboratory studies employing sophisticated laser, spectrometer and photon counting techniques and equipment including atomic absorption spectroscopy, intensity fluctuation spectroscopy, atomic and molecular fluorescence and Brillouin scattering. Offered winter only.
Prerequisite: PHY 317 and 371. Also PHY 331 or permission of instructor.

PHY 421 Thermodynamics (4)
The zeroth, first and second laws of thermodynamics with applications to pure substances. Introduction to the kinetic theory of gases and to statistical mechanics. Offered winter only.
Prerequisite: PHY 361 and APM 257.

PHY 441 Physics of Radiology I (2)
Physical principles underlying the practice of radiology. Offered fall only.
Prerequisite: Departmental approval and PHY 371, 381 and 347.

PHY 442 Physics of Radiology II (2)
A continuation of PHY 441. Offered winter only.
Prerequisite: PHY 441.

PHY 443 Physics of Nuclear Medicine I (2)
Physical principles of diagnostic and therapeutic applications of radio-nuclides. Offered fall only.
Prerequisite: Approval of department and PHY 371, 381 and 347.

PHY 444 Physics of Nuclear Medicine II (2)
A continuation of PHY 443. Offered winter only.
Prerequisite: PHY 443.

PHY 445 Medical Instrumentation (2)
Detailed examination of the scientific instrumentation used in modern medical diagnostic and therapeutic practice. Offered winter only.
Prerequisite: Approval of department, PHY 371, 381 and 347.

PHY 470 Relativity (4)
Special relativity in mechanics and electromagnetism. Introduction to general relativity and gravitation. Offered fall only.
Prerequisite: PHY 361 or 371 or 381.

PHY 472 Quantum Mechanics I (4)
Principles of nonrelativistic quantum mechanics, Schrodinger wave equation, expectation values of energy, position, momentum and angular-momentum operators, spin, perturbation theory, identical particles. With applications to atomic systems. Offered fall only.
Prerequisite: PHY 351, 361, 371 and APM 257.

PHY 482 Electricity and Magnetism II (4)
Multipole fields, solutions of Laplace and Poisson equations, electromagnetic waves in insulators and conductors, radiation and the derivation of the laws of optics from Maxwell's equations. Offered fall only.
Prerequisite: PHY 381, APM 257 and MTH 256.

PHY 490 Independent Study and Research (2, 4 or 6)
Prerequisite: Four credits of 300-level physics and written agreement of a physics faculty supervisor.

PHY 497 Apprentice College Teaching (2)
Directed participation in teaching selected undergraduate physics courses. May be repeated for a maximum of 4 credits. Graded S/U.
Prerequisite: Permission of instructor.

DEPARTMENT OF POLITICAL SCIENCE

420 VARNER HALL (810) 370-2352

Chairperson: *William A. Macauley*

Professors emeriti: *Edward J. Heubel, Roger H. Marz*

Professors: *Sheldon Appleton, Thomas W. Casstevens, Robert J. Goldstein, Vincent B. Khapoya, James R. Ozinga, Carl R. Vann (Health Behavioral Sciences and Political Science)*

Associate professors: *John Klemanski, William A. Macauley, C. Michelle Piskulich*

Assistant professors: *Emmett Lombard, Dale K. Nesbary, J. Patrick Piskulich, Susan Thomas, Martha T. Zingo*

Adjunct assistant professors: *Henry Bowers, Rebecca Chapman, Gerald W. Hall, Robert Mourning, Anthony Tersigni*

Chief adviser: *Vincent B. Khapoya*

Internship director: *J. Patrick Piskulich*

Political science offers a concentrated and systematic study of politics at all levels of government and in many different cultural and national settings. Policy making, law, political behavior, administration, international politics, foreign governments, and theories and philosophies of government are among the many topics covered in these courses. The general educational aim is to increase students' awareness and understanding of the broad realm of politics and government. Many students electing this major wish to prepare for careers in public service, law, practical politics, or the teaching of government and social studies.

The Bachelor of Arts degree with a major in political science is the department's broadest program and is appropriate for students with an interest in public affairs or students who intend to enter law school or graduate school. The department also offers a major in public administration leading to the Bachelor of Science degree. This program is designed to provide appropriate analytical skills and prepare students for direct entry into public service or for specialized graduate programs in public administration and public policy. The Master of Public Administration degree is also offered by the department (see the *Oakland University Graduate Catalog*). The Master of Public Administration degree is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA).

Requirements for the liberal arts major in political science, B.A. program

To be admitted to major standing, students must complete the following core program: PS 100, 131, 303 and 304 with minimum grade of 2.0 in each course and with an average grade in the four courses of 2.50 or above.

To remain in good standing, students must maintain an average of 2.00 in their remaining political science courses. The major requires a minimum of 40 credits in political science, distributed as follows:

1. The core program (14 credits): PS 100, 131, 303 and 304. PS 303 and 304 should be taken in the sophomore year if possible and no later than the junior year.

2. At least one 4-credit course must be selected from each of the three fields of political science for a total of 12 credits:

   American politics: PS 301, 302, 305, 307, 323, 324, 342, 343, 350, 353, 402, 403, 440, 441 and 450;

   Comparative and international politics: PS 314, 318, 329, 330, 331, 332, 333, 334, 335, 337, 410, 413 and 430;

   Political theory and political thought: PS 320, 321, 371, 372, 373, 377 and 480.

3. The remaining 14 credits in political science are electives, with the following restrictions: only 4 credits of PS 110 and no more than a total of 12 credits from PS 390, 458 and 490 will be accepted in the major.

Requirements for the liberal arts major in public administration and public policy, B.S. program

To be admitted to major standing, students must complete the following core program: PS 100, 131, 303 and 304 with a minimum grade of 2.0 in each course and with an average grade in the four courses of 2.50 or above.

To remain in good standing, students must maintain an average of 2.00 in their remaining major and corequisite courses. The major requires a minimum of 56 credits, distributed as follows:

1. The core program (14 credits): PS 100, 131, 303 and 304. PS 303 and 304 should be taken in the sophomore year if possible and no later than the junior year.
2. The sequence of departmental courses (26 credits). Required are: PS 257, 350, 353, 453, 454 and 458. Enrollment in PS 458 (8 credits), the Public Affairs Internship, must be preceded by consultation with the director of internships. In those cases where the internship requirement is waived, the student must elect an alternative 8 credits of political science, subject to approval of the department's chief academic adviser.
3. The corequisites (16 credits). The following courses are required: ACC 200, STA 225, and ECN 200 and 201 (ECN 210 — 6 credits — is acceptable in lieu of 200 and 201).

For students contemplating graduate school, MTH 141 and 122 are strongly recommended.

Requirements for liberal arts minor in political science

To earn a minor in political science, students must complete a minimum of 20 credits in political science, including PS 100 or PS 131 and at least 8 credits at the 300-400 level.

Requirements for the secondary teaching minor in political science

The secondary teaching minor in political science requires 24 credits in political science courses, including PS 100; PS 301 (or 302 or 342); and one course from any four of the following five groupings: state and local government (PS 305 or 307); political behavior (PS 323 or 324); public administration and public policy (PS 350 or 353); international relations and comparative politics (PS 131 or 314); political philosophy (PS 371, 372 or 373).

Departmental honors

Departmental honors will be awarded competitively to selected students from among those who have attained an overall grade point average of at least 3.30 and a minimum grade point average of 3.70 for courses in political science. No more than 25 percent of the students for each graduation will be awarded honors in political science and public administration and public policy.

Requirements for a major in political science with other concentrations

Students in political science may pursue a regular major in political science with a number of interdepartmental concentrations. These include, among others, American studies, applied statistics, human and industrial relations, Michigan studies, social justice and corrections, and women's studies.

Recommended courses for prelaw students

It is recommended that political science majors interested in law school elect the law-related courses given by the department: PS 241 (Law and Politics); PS 341 (Constitution and Civil Liberties); PS 342 (The Judicial Process); or PS 343 (The Supreme Court and Constitutional Politics). For advice in planning for law school, contact the department's prelaw adviser, Martha Zingo. The student should also read the Prelaw Studies section of this catalog.

Legal Assistant Program

In cooperation with Continuing Education, the Department of Political Science sponsors courses that prepare students for the legal assistant field. To earn the diploma awarded by Continuing Education in this American Bar Association (ABA) approved program, students must take eight foundation courses and three legal specialty courses, and serve an internship in a legal setting.

A student majoring in political science may offer up to 8 credits of this course work toward the 40 credits required for the major. Legal assistant courses taken beyond these 8 credits may yield elective credits toward the degree. These courses may also be taken as electives by students in other programs. For a course to qualify for both degree and Legal Assistant Program diploma, concurrent registration for the course in both programs is required. Courses approved to date by the Committee on Instruction are listed below. For specific details on policies and procedures for this program, request a brochure from the Continuing Education Office (265 South Foundation Hall, 370-3120) or contact the director of the Legal Assistant Program.

PS 344a	(CE 2506)	Substantive Law: Contracts (1)
PS 344b	(CE 2507)	Substantive Law: Torts (1)
PS 345a	(CE 2510)	Legal Research and Writing I (1)
PS 345b	(CE 2511)	Legal Research and Writing II (1)
PS 346	(CE 2520)	Real Property Transactions (1)
PS 348	(CE 2530)	Corporations (1)
PS 447a	(CE 2550)	Probate Administration (1)
PS 447b	(CE 2555)	Taxation of Estates and Trusts (1)
PS 447e	(CE 2568)	Estate Planning and Documents (1)
PS 449a	(CE 2540)	Litigation I: Case Preparation before Trial (1)
PS 449b	(CE 2541)	Litigation II: Case Preparation before Trial (1)
PS 449d	(CE 2547)	Litigation III: Anatomy of a Lawsuit (1)
PS 491		Special Topics for Legal Assistant (1)
PS 491a	(CE 2521)	Criminal Law (1)
PS 491b	(CE 2522)	Administrative Law (1)
PS 491c	(CE 2524)	Environmental Law (1)
PS 491d	(CE 2535)	Employment Law (1)
PS 491e	(CE 2555)	Juvenile Law (1)
PS 491f	(CE 2574)	Advanced Law Library Research (1)
PS 491g	(CE 2575)	Computer Assisted Legal Research (1)
PS 491h	(CE 2576)	Patent, Copyright and Trademark Law (1)
PS 491i	(CE 2578)	Auto Accident Law (1)
PS 491j	(CE 2579)	Family Law (1)
PS 491l	(CE 2581)	Bankruptcy and Collections (1)
PS 492	(CE 2599)	Ethics/Internship (2)

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

PS 100 Introduction to American Politics (4)
The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the Presidency and the courts. *This course satisfies the university general education requirement in social science. It also satisfies the university ethnic diversity requirement.*

PS 110 Contemporary Political Issues (2 or 4)
Selected topics dealing with current political issues or public policy problems. The particular topic will be announced at the time of offering. Designed for the general student. May be repeated for credit with different topics.

PS 115 U.S. Foreign Policy (4)
Foreign policy issues and challenges confronting the U.S. in the nuclear age in light of the historical evolution of American diplomacy and in light of the limitations imposed upon foreign policy makers by public opinion and the exigencies of domestic politics. *This course satisfies the university general education requirement in social science.*

PS 131 Foreign Political Systems (4)
Analysis of contemporary politics and governmental systems of selected countries; types chosen range from established constitutional democracies and totalitarian systems to movements and regimes of new developing nations. Offered fall and winter. *This course satisfies the university general education requirement in social science.*

PS 203 The Politics of Race and Ethnicity (4)
A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. *This course satisfies the university ethnic diversity requirement.*

PS 241 Law and Politics (4)
A broad survey of the function of law and legal systems in the political order. The student will be exposed to the classic legal, historical, anthropological and comparative treatments of the subject.

PS 250 Politics of Survival (4)
An examination of environmental, regulatory and energy related political issues that challenge human survival both nationally and globally.

PS 257 Public Affairs Careers Orientation (2)
Planning for public service careers; the varieties of public service careers and the alternative of pursuing advanced degrees are explored. Examples and practical problems from agency work are examined through case studies and presentations by practitioners and professional administrators.

PS 300 American Political Culture (4)
A study of the main themes in American culture and the ways in which they affect the political beliefs, attitudes, opinions and behaviors of Americans. Key themes include individualism, the drive for success, racial attitudes, the American sense of a special mission in the world and American beliefs about democracy. (This course may not be taken for credit by students receiving credit for AMS 300.)
Prerequisite: PS 100.

PS 301 American Presidency and the Executive Process (4)
A study of presidential politics, decision making and leadership in the American political system.
Prerequisite: PS 100.

PS 302 Legislative Process and Public Policy (4)
A study of legislative behavior and decision making, emphasizing the problems of public policy development in the American political system.
Prerequisite: PS 100.

PS 303 Research Methods and Statistics (4)
A study of research design, measurement of political variables and data analysis. Not open to students who have completed PS 222. Concurrent enrollment in PS 304 is required.
Prerequisite: One course in political science.

PS 304 Computer Techniques (2)
Introduction to the computing environment at the university; microcomputer packages in word-processing, electronic spreadsheet analysis and business graphics; statistical packages on the mainframe computer. Laboratory exercises will be coordinated with materials in PS 303. Not open to students who have completed PS 222 or 223. Concurrent enrollment in PS 303 is required.

PS 305 Politics of the Local Community (4)
Study of local governments, political forces, trends in metropolitan and suburban politics, and problems of planning in an age of urbanization.
Prerequisite: PS 100.

PS 307 State Politics (4)
Comparative analysis of the variations and similarities of the political systems of the 50 states, the policy-making structures, political participation and contemporary public policy issues.
Prerequisite: PS 100.

PS 311 Women and Politics (4)
Examines the role of women in politics including political participation and representation. Additional topics will include women and public issues (such as affirmative action and comparable worth), as well as an introduction to feminist political thought. Identical with WS 311.

PS 314 International Politics (4)
Interdisciplinary study of concepts and hypotheses basic to the understanding and analysis of political and economic relations and conflict among nations, states and other institutions in the international system.

PS 318 Foreign Policies of Communist Systems (4)
Relations since 1917 between communist states and the Western world, as well as relations among communist states.
Prerequisite: PS 131.

PS 320 Laboratory in Empirical Methods (4)
Topics include social science data management, two or three batch and conversational statistical packages, some computer programming, some statistics not covered in PS 303 and different modes of empirical political science research.
Prerequisite: PS 303.

PS 321 Systematic Political Analysis (4)
A study of selected formal (i.e., logical, mathematical or statistical) models in political science. An introduction to the methodology of social science research, with emphasis on student research projects.
Prerequisite or co-requisite: a course in elementary statistics or PS 303.

PS 323 The American People and Their Presidents (4)
Study of the relationships among public attitudes toward the presidency and the political system, voting behavior in presidential elections, and presidential policies and leadership.
Prerequisite: PS 100.

PS 324 Political Parties and Elections (4)
The study of electoral systems, political parties, and the voting behavior of individuals and groups, with special attention to U.S. political experience.
Prerequisite: PS 100.

PS 325 Demography of American Politics
Study of the opinions, attitudes, voting and political activities of people belonging to different demographic segments of the population and of the underlying roots of these political behaviors. The demographic variables studied include racial, ethnic, gender, income, religion, residence, educational level, age, marital status, and similar groupings.
Prerequisite: PS 100.

PS 326 Political Campaigns (4)
A study of political campaigns, with classroom exercises and the opportunity for fieldwork on current political campaigns. The role and influence of the media on campaigns.

PS 329 European Political Systems (4)
An analysis of politics within and between nations in Europe. Selected institutions and processes are examined in detail. A comparative point of view is emphasized.
Prerequisite: PS 131.

PS 330 Politics of Development (4)
An examination of the various approaches and theories used in comparative political research, including theories of political economic development and social change.
Prerequisite: PS 131 and 303.

PS 331 Politics in Canada and the Commonwealth (4)
An analysis and comparison of politics, parties, parliament, politicking, and public policy in Canada and selected countries of the Commonwealth.

PS 332 Politics of the Middle East and North Africa (4)
The cultural and historical factors that influence contemporary politics of the area will be emphasized. Topics include religion, social structures, economic problems, the impact of the West and the Arab-Israeli conflict.

PS 333 African Politics (4)
Examination of politics of selected African states. Primary focus is on political development. Attention is given to traditional and colonial politics as well as to individuals, groups and institutions that make up the present political process.

PS 334 Political Systems of Southern Asia (4)
Examination of the elements of political life in India, Bangladesh and Pakistan. The cultural, historical, social and economic factors that influence contemporary political institutions, and the issues and processes by which political conflicts are resolved will be studied.

PS 335 Politics of Latin America (4)
Analysis of Latin American political systems and the historical, social and economic factors underlying them. The major countries are studied intensively, and a comparative approach is used to examine the variations from democracy to dictatorship and the political instability that characterizes the area.

PS 337 The Russian Political System (4)
A descriptive analysis of the Russian society as a political system: its origins, institutions and political behavior. Trends and developments in the system will be assessed, and comparisons with other political systems will be undertaken.

PS 341 Constitution and Civil Liberties (4)
An analysis of theories of civil liberties and the constitutional and political conflicts over these issues.
Prerequisite: PS 100 or 241.

PS 342 The Judicial Process (4)
A study of judicial behavior and decision making in federal courts with an emphasis on the role of courts in developing public policies.
Prerequisite: PS 100 or 241.

PS 343 The Supreme Court and Constitutional Politics (4)
Survey of American constitutional law and the role of the Supreme Court in the American political system.
Prerequisite: PS 100 or 241.

PS 350 Public Administration (4)
Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.
Prerequisite: PS 100.

PS 353 Public Policy Analysis and Program Evaluation (4)
Examines the political, economic and social factors in development, implementation and impact of public policies; the roles of interest groups, political parties, bureaucratic institutions and legislative bodies in the policy process at federal, state and local governmental levels.
Prerequisite: PS 100 and either PS 303 or permission of instructor.

PS 359 Public Policy and Health Care (4)
An examination of the status and evolution of public policies relating to health and health care, the policy-making processes in health care and the various implications of trends in health care policy.
Identical with HBS 359.
Prerequisite: PS 100.

PS 371 American Political Thought (4)
The writings of prominent American thinkers and statesmen whose ideas have influenced the development of the American polity will be considered. Selected texts by European thinkers may also be examined with a view to their influence on America.
Prerequisite: PS 100.

PS 372 Western Political Thought I (4)
The development of Western political philosophies and ideas during the period from 600 B.C. to A.D. 1500. Major philosophers and thinkers (such as Socrates, Plato, Aristotle, Jesus, Augustine and Aquinas) are studied in the context of the significant political, economic and religious factors of their eras.

PS 373 Western Political Thought II (4)
The development of Western political philosophies and ideas during the period from A.D. 1500 to the present. Major philosophers and thinkers (such as Machiavelli, Luther, Calvin, Hobbes, Locke, Rousseau, Hegel and Marx) are studied in the political, economic and religious context of their eras.

PS 377 Communism (4)
The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations. *This course satisfies the university general education requirement in Western civilization.*

PS 390* Independent Study (2 or 4)
Readings not normally covered in existing course offerings. Directed on an individual basis.
Prerequisite: Permission of department and instructor; form available in 420 Varner Hall.

PS 412 Police Budgeting and Personnel Management (4)
Finance and resource allocation methods used by local and state police agencies. Topics include funding sources, expenditure patterns, resource allocation techniques and stakeholder influence. Identical with SOC 412.

PS 413 International Law (4)
An examination of the principles and organization of modern international law. Attention is given to the growing fields of ocean resources, outer space, environmental protection and information law.
Prerequisite: PS 314.

PS 453 Public Budgeting (4)
The budgeting process in complex institutions, with special reference to various modern budgetary systems. Stresses use of control over flow of funds as an instrument in policy control.
Prerequisite: PS 350 and either PS 303 or STA 225.

PS 454 Public Personnel Administration (4)
Study of the procedures, techniques and problems of personnel administration in public agencies; evolution of the modern civil service system, merit principle, and responses to collective bargaining and equal opportunity programs.
Prerequisite: PS 350 and either PS 303 or STA 225.

PS 458* **Public Affairs Internship (4 or 8)**
Supervised student internships with governmental, political and other public agencies; reports and analyses relating to agency required. Applicants must seek departmental approval at the beginning of the semester prior to that of the internship. No more than 4 credits of PS 458 may be counted toward the major in political science.
Prerequisite: PS 257 and permission of the internship director; form available in 420 Varner Hall.

From time to time, the department offers advanced seminars in which a topic or problem is studied in depth, and in which significant individual student research is presented for analysis and criticism. The seminar titles refer to the broad fields of political science within which the problem falls; the precise problems to be studied will be announced by the department when the seminars are offered. All seminars require permission of the department before registration. Offered every semester.

PS 402, 403 **Seminar in American Politics (4 each)**
PS 410 **Seminar in International Relations (4)**
PS 420 **Seminar in Political Behavior (4)**
PS 430 **Seminar in the Comparative Study of Political Systems (4)**
PS 440, 441 **Seminar in Public Law (4 each)**
PS 450 **Seminar in Public Policy (4)**
PS 460 **Seminar in Public Administration: Strategies and Policies (4)**
PS 480 **Seminar in Political Theory (4)**
PS 490* **Special Topics or Directed Research (2, 4 or 8)**
Prerequisite: Permission of the instructor; form available in 420 Varner Hall.

*Students are limited to 8 credits of independent study (PS 390 or 490) in any one semester and may offer no more than a total of 12 credits from PS 390, 458 and 490 toward fulfillment of major requirements.

DEPARTMENT OF PSYCHOLOGY

111 PRYALE (810) 370-2300

Acting chairperson: *David W. Shantz*

Professors emeriti: *Edward A. Bantel, David C. Beardslee, Jean S. Braun, Donald C. Hildum*

Professors: *Daniel N. Braunstein, Harvey Burdick, Ranald D. Hansen, Algea O. Harrison, Dean G. Purcell, Harold Zepelin*

Associate professors: *Max Brill, I. Theodore Landau, Laurence G. Lilliston, David G. Lowy, Ralph Schillace, David W. Shantz, Robert B. Stewart, Jr.*

Assistant professor: *Christine Hansen, Cynthia J. Schellenbach*

Chief adviser: *Robert B. Stewart, Jr.*

The Department of Psychology offers undergraduate programs leading to the Bachelor of Arts degree. The psychology curriculum is structured to meet the needs of four types of students interested in majoring in psychology: students who plan to find employment after obtaining the bachelor's degree, students who plan to go to graduate school in psychology, students who plan to enter a field other than psychology that requires further formal training and students who have a general interest in psychology. A pamphlet, "Majoring in Psychology at Oakland University," is available in the department office. Students planning to major in psychology should obtain a copy of this pamphlet, which offers suggested programs of study.

Requirements for the liberal arts major in psychology, B.A. program

To earn the Bachelor of Arts with a major in psychology, students must complete a minimum of 40 credits in psychology with a minimum GPA of 2.00 over all psychology courses and must satisfy the following three requirements:

1. PSY 100, 250 and 251 with a minimum course grade of 2.0
2. Two of the following courses: PSY 215, 225, 235 and 245
3. One course each from three of the following four groups:
   Basic Processes: PSY 311, 316, 317, 318, 319, 415
   Developmental: PSY 321, 322, 323, 327, 425
   Social: PSY 330, 333, 337, 338, 339, 435
   Personality and Individual Differences: PSY 341, 342, 343, 344, 445.

Students planning to attend graduate school should complete one of the experimental courses (PSY 450, 452, 453 or 454). PSY 399 may not be counted toward the major.

Departmental honors

Departmental honors are conferred upon graduates who have taken at least six psychology courses at Oakland University, including PSY 251 and a 400-level experimental course, and achieved a grade point average of 3.50 or above in psychology courses. The student must also do honors-level work in PSY 494.

Requirements for a modified major in psychology with a linguistics concentration, B.A. program

A modified major in psychology with a concentration in linguistics is available. The requirements in psychology are a minimum of 24 credits including PSY 100, PSY 250, PSY 251 and at least two 300-level courses. For additional information, see the linguistics section of the catalog.

Requirements for the liberal arts minor in psychology

To earn a minor in psychology, students must complete a minimum of 24 credits in psychology with a minimum GPA of 2.00 over all psychology courses and must satisfy the following three requirements:

1. PSY 100 or 130, and PSY 250 with a minimum course grade of 2.0
2. Two of the following courses: PSY 215, 225, 235 and 245
3. One course each from two of the following four groups:
   Basic Processes: PSY 311, 316, 317, 318, 319, 415
   Developmental: PSY 321, 322, 323, 327, 425
   Social: PSY 330, 333, 337, 338, 339, 435
   Personality and Individual Differences: PSY 341, 342, 343, 344, 445

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

PSY 100 Foundations of Contemporary Psychology (4)
An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors. *This course satisfies the university general education requirement in social science.*

PSY 130 Psychology and Society (4)
Examination of relationships among people and the effects of these relationships upon them. Analysis of social functions and roles; development and change of attitudes, beliefs and values; and development of personality in relation to the social milieu. *This course satisfies the university general education requirement in social science.*

PSY 215 Introduction to Basic Psychological Processes (4)
A survey of the processes of learning, memory and thinking, including physiological factors underlying these processes.
Prerequisite: PSY 100 or 130.

PSY 225 Introduction to Life-Span Developmental Psychology (4)
A survey of the principal cognitive, social and behavioral processes that operate across the life-span.
Prerequisite: PSY 100 or 130.

PSY 235 Introduction to Social Psychology (4)
Overview of traditional and current trends in social psychology. Attention is given to developing theoretical approaches to attitudes, interpersonal processes and social perception.
Prerequisite: PSY 100 or 130.

PSY 245 Introduction to Individual Differences and Personality Psychology (4)
A survey of basic research in individual differences and personality, including major areas such as gender, aggression, altruism, conflict and measurement of personality variables.
Prerequisite: PSY 100 or 130.

PSY 250 Introduction to Research Design (4)
General introduction to design, function and interpretation of research in the social sciences. Aimed at providing necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.
Prerequisite: PSY 100 or 130.

PSY 251 Statistics and Research Design (4)
The principal statistical procedures employed in social science research. An introduction to descriptive statistics, probability and inferential statistics necessary to carry out and interpret social science research. Two years of high school mathematics (some algebra) are recommended.
Prerequisite: PSY 250.

PSY 311 Sensation and Perception (4)
Approaches to the basic sensory systems and perceptual processes.
Prerequisite: PSY 250.

PSY 316 Cognitive Psychology (4)
The information processing approach to problems in pattern recognition, selective attention, mental operations, short- and long-term memory, the psychology of reading, problem solving and probabilistic reasoning.
Prerequisite: PSY 250.

PSY 317 Sleep and Dreams (4)
A review of facts and theories regarding sleep and dreams with demonstrations of research techniques. Topics include psychological and biological viewpoints on sleep, dreams, dream interpretation and sleep disorders.
Prerequisite: PSY 250.

PSY 318 Physiological Psychology (4)
Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.
Prerequisite: PSY 250.

PSY 319 Animal Behavior (4)
Comparative psychological, ethological and sociobiological viewpoints on behavior of animals. Emphasis will be on vertebrate species including humans. Discussion of reproductive, aggressive and social behaviors, learning, communication, etc. Stresses an evolutionary perspective.
Prerequisite: PSY 250.

PSY 321 Child Development (4)
Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.
Prerequisite: PSY 250.

PSY 322 Adolescence and Youth (4)
The transition to adulthood, as influenced by physiological change, intellectual growth, and social attitudes. Topics include the quest for identity, juvenile delinquency, drug use, the youth culture, relationships between generations, and vocational choice.
Prerequisite: PSY 250.

PSY 323 Adulthood and Aging (4)
Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.
Prerequisite: PSY 250.

PSY 327 Socialization in the Family (4)
Some areas of research and theory on socialization processors. Areas of focus: attachment and separation, conscience development, sex-role identity, ego-identity, etc. Role of principal agents, e.g., family, peers, school.
Prerequisite: PSY 250.

PSY 330 Social Cognition (4)
The theory and research explicating thinking processes underlying social phenomena such as impression formation, persuasion, conformity, compliance, stereotyping and causal perception. Areas of focus include attitude formation and change, attribution theory, the role of affect in cognition, schema theory and theories of nonverbal behavior.
Prerequisite: PSY 250.

PSY 333 Motivation (4)
The nature of physiological and behavioral mechanisms that control an organism's reaction to the demands of its environment.
Prerequisite: PSY 250.

PSY 337 Interpersonal Processes and Group Behavior (4)
Group structure, function and process. Focus on how individuals affect the behavior of people in groups; how the group, in turn, affects the behavior of the individual. Topics include leadership, cohesion, group therapy, crowds and mobs.
Prerequisite: PSY 250.

PSY 338 Health Psychology (4)
The application of theory and research in psychology to the enhancement of health and prevention and treatment of illness. The interaction between biological, social and psychological factors in health and medical problems is emphasized.
Prerequisite: PSY 250.

PSY 339 Emotion (4)
Understanding of human emotion from both a historical and theoretical viewpoint. Contemporary theoretical positions will be compared in terms of the roles cognition, behavior and psychological changes play in the emotional experience.
Prerequisite: PSY 250.

PSY 341 Abnormal Psychology (4)
The psychodynamics of abnormal behavior, clinical types, methods of investigation and principals of psychotherapy.
Prerequisite: PSY 250.

PSY 342 Coping Strategies in the Normal Personality (4)
Characteristics of healthy personality in the following dimensions: need gratification, reality contact, interpersonal relationships and growth.
Prerequisite: PSY 250.

PSY 343 Psychopathology of Childhood (4)
The psychopathology of children and adolescents, emphasizing dynamic and cognitive-perceptual-motor variables.
Prerequisite: PSY 250.

PSY 344 Behavior Analysis (4)
Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Included will be a consideration of the application of principles of behavior analysis to individual and social behavior.
Prerequisite: PSY 250.

PSY 358 History and Systems of Psychology (4)
How psychology came to be as it is. The beginning to the great experiments and the schools of psychology; the schools to World War II; World War II to the present. Researchers, experiments, theories.
Prerequisite: PSY 100 and two psychology courses other than PSY 251.

PSY 362 Statistical Analysis on Computers (4)
The principal computer packages used by social science researchers in analyzing data. A study of MINITAB serves to review basic concepts and introduce the logic of structuring data sets. The remainder of the course will focus on the BMDP and SPSS packages.
Prerequisite: PSY 251.

PSY 370 Psycholinguistics (4)
Identical with ALS 335.

PSY 371 Work with the Elderly I (4)
Introduction to community and institutional work with the elderly. Field placement is combined with readings and lectures on psychosocial services for the elderly.
Prerequisite: PSY 250 and 323 or permission of instructor.

PSY 375 Psychology of Women (4)
Examines gender differences resulting from the socialization of girls and women and the psychological impact of life events experienced exclusively or differentially by women. Topics include role conflicts, gender stereotypes, achievement and employment. Identical with WS 375.
Prerequisite: PSY 100 or 130.

PSY 381 Tests and Measurement (4)
Theories of measurement and evaluation. Examination of construction and interpretation of tests of ability, achievement, interests and special aptitudes. Objective tests of personality.
Prerequisite: PSY 251.

PSY 399 Field Experience in Psychology (4)
The application of psychological concepts and methods in a work setting. Includes job placement with a classroom component, readings and discussion of relevant literature. Does not count toward the major. May not be repeated for credit.
Prerequisite: PSY 250, 2 courses between PSY 310 and 349, and permission of instructor.

PSY 415 Seminar in Basic Psychological Procedures (4)
Advanced seminar in a special topic related to cognition, perception, conditioning or physiological processes.
Prerequisite: PSY 215, 250 and permission of instructor.

PSY 425 Seminar in Developmental Psychology (4)
Advanced seminar in a special topic related to developmental psychology, such as theories of development.
Prerequisite: PSY 225, 250 and permission of instructor.

PSY 435 Seminar in Social Psychology (4)
Advanced seminar in a special topic related to social psychology, such as attitudes, attributions or theories of social influence.
Prerequisite: PSY 235, 250 and permission of instructor.

PSY 445 Seminar in Individual Differences and Personality Psychology (4)
Advanced seminar in a special topic related to individual differences and personality psychology, such as theories of personality, aggression, or religion.
Prerequisite: PSY 245, 250 and permission of instructor.

PSY 450 Advanced Experimental Psychology: Basic Psychological Processes (4)
Issues in learning, perception, thinking, physiological psychology, and animal behavior, with independent research project.
Prerequisite: PSY 251 and permission of instructor.

PSY 452 Advanced Experimental Psychology: Developmental (4)
Issues in design and methodology of psychological research with application to the developmental area. Independent project required.
Prerequisite: PSY 251 and permission of instructor.

PSY 453 Advanced Experimental Psychology: Social (4)
Theory and techniques of survey research, field experiments, laboratory experiments and field studies. Experience in data collection; independent project required;
Prerequisite: PSY 251 and permission of instructor.

PSY 454 Advanced Experimental Psychology: Individual Differences and Personality (4)
Issues in design and methodology of psychological research on personality. Independent research project required.
Prerequisite: PSY 251 and permission of instructor.

PSY 460 Senior Seminar in Psychological Science (4)
This team taught seminar will bring to bear the understandings of various subdisciplines in psychology on a complex behavioral issue (e.g. child rearing, academic achievement, hostility and helping). The members of the department representing the relevant subdisciplines will lead the seminar discussion.
Prerequisite: PSY 251 and 358.

PSY 470 Apprentice College Teaching (4)
Supervised participation in teaching undergraduate psychology courses. Discussion of teaching objectives and methods. May be repeated for a total of 8 credits. Only 4 credits may be offered to fulfill major requirements.
Prerequisite: Permission of instructor.

PSY 483-485 Readings and Research Projects (2 or 4 each)
Individual readings or laboratory research on a topic agreed upon by a student and a member of the psychology faculty. May be repeated for additional credit. Not more than 8 credits of readings and research project may be counted toward fulfillment of the major in psychology.
Prerequisite: Permission of instructor.

PSY 487-489 Research Apprenticeship (4 each)
Student will be mentored by faculty in design and implementation of a research project. May be repeated for additional credit. Not more than 8 credits earned in the research apprenticeship may be counted toward fulfillment of the major in psychology.
Prerequisite: Permission of instructor.

PSY 494 Honors Independent Studies (4)
Independent honors research projects in clinical, developmental, experimental and social psychology, respectively.
Prerequisite: Permission of instructor.

DEPARTMENT OF RHETORIC, COMMUNICATION AND JOURNALISM

317 WILSON HALL (810) 370-4120

Chairperson: *Jane Briggs-Bunting*

Professors emeriti: *Donald C. Hildum, William White*

Professors: *Jane Briggs-Bunting (director, Journalism Program), Alice Horning, Sharon Howell, Neal Shine, Ronald A. Sudol*

Associate professors: *Wallis May Andersen (director, Freshman Rhetoric Program), Rose Cooper, Wilma Garcia (director, Developmental Study Program), Barbara Hamilton, David L. Lau, Margaret B. Pigott, Roberta Schwartz*

Special instructor: *Bernadette Dickerson*

Adjunct associate professor: *William W. Connellan*

Lecturers in rhetoric: *Anne Becker (supervisor, Internships), Catherine Breidenbach, Johnson Cheu, Elsa Corral, Kris D'Arcy, Carl Dull, Fred Glaysher, Tenicia Gregory, Catherine Haar, Monifa Jumanne, Kasia Kietlinska, Anne Marie Maclean, John Mitchell, Julie Mody, Anne Mungai, Timothy McGinn, Arthur Orme, Anna Mae Powell, Leba Rautbort, Jeanie Robertson, William Rouster, Carole Royer, Joseph Sheltraw, Carole Terry, Leslie Bodden Vaughn, Elizabeth Williams, Edward Wolff, Helen Woodman, Helen Zucker, Jack Zucker*

Lecturers in communication: *Susan Baker, Shaye Dillon, Thomas Discenna, Jean Dohanyos, Gene Fogel, Judith Hoeffler, Kevin Kelch, Barbara Laboissonniere, Deborah Lutfi, Janet McKenney, Beth Olszewski, Robert Parent, Barbara Smith*

Lecturers in journalism: *Dale Coons, Katherine Dahlstrom, Berl Falbaum, David Farrell, Stephen Friedman, William Gallagher, Leola Gee, Joe Grimm, Karen Hermes-Smith, Thomas Houston, Kim Madeleine, Dane Maralason, James McClear, Patricia Mills, Brownson Murray, Keith Oppenheim, Lewis Owens, Gary Schafer, Ritu Sehgal, Richard Smith, Tom Stanton, Steve VandenBrook, Roger Weber, Carlton Winfrey, Charles Yoakum*

The Department of Rhetoric, Communication and Journalism offers programs of study leading to the degree of Bachelor of Arts in Communication or Journalism, with the opportunity to concentrate in several areas within each major. Courses are available in communication theory, public and interpersonal communication, print and broadcast journalism, public relations, advertising, oral interpretation and mass media.

The department serves the non-speech major and the general university student. Communication and journalism training can enhance almost any career or life. There are many

specialized careers that welcome students with communication knowledge and writing skills, e.g., journalism, media, law, teaching. The department also serves the general university student by providing the composition courses required by the university.

Departmental honors

All communication and journalism majors with a university grade point average of 3.00 or above are considered candidates for departmental honors. Honors are awarded to those candidates with the highest averages in major courses. The exact criterion varies from year to year.

Rhetoric Program

The rhetoric program is designed to help students acquire the writing, reading and thinking skills necessary to perform college-level academic work. While the emphasis in composition courses is on coherent and effective writing, other modes of written communication, as well as library search techniques, research and annotation, are included in the writing curricula. In addition, the program offers courses in reading, study skills and tutorial instruction.

Students are placed in rhetoric writing courses according to the results of pre-enrollment placement testing. Unless exempted, students must enroll in the writing course sequence assigned, which in most cases will include a two-course sequence in the form and content of composition (RHT 150 and RHT 160). These courses are designed so that students who complete the assigned sequence with a grade of 2.0 or higher in both RHT 150 and RHT 160 will fulfill the university's requirement of writing proficiency for graduation. *Students may not repeat the placement examination.* (See *Undergraduate degree requirements.*)

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

RHT 045 Communication Skills (6)
A small group course introducing new students to the basic language arts skills of reading, writing and speaking needed for success in the university. Graded S/U. Credits earned may not be used to satisfy minimal graduation requirements in any academic program.
Prerequisite: Placement in Academic Opportunity Program.

RHT 102 Basic Writing (4)
Developing writing skills including idea generation and invention, organizational strategies, and conventional usage in expository prose. Emphasis on developing fluency and effective writing processes. Placement by diagnostic testing or referral. May be repeated once for additional credit. Graded S/U.

RHT 104 Supervised Study (1 or 2)
Tutorial instruction in areas mutually agreed upon by student and instructor such as independent or academic writing projects. May be taken concurrently with other rhetoric courses (7 weeks or 14 weeks). May be repeated for up to 8 credits. Graded S/U.

RHT 111 Writing and Reading for Non-Native Speakers (4)
For students learning English as a second language, focusing on basic syntax, efficient reading, and effective writing techniques. Students will write logs or journals, exercises and several short compositions. Placement by diagnostic testing or referral. Graded S/U.

RHT 120 College Study Skills (4)
Prepares students for academic success by introducing theories and effective practices in college learning, including strategies of memory and retention, examination preparation and performance, textbook reading and marking, notetaking, time-management.

RHT 140 College Reading (4)
College reading techniques, including diagnosis of instructional needs, and an individual program study.

RHT 142 Efficient Reading (2 or 4)
For students who understand material but need more efficient reading skills. Topics include skimming/scanning techniques, adjustment of rate, patterns of organization, drawing inferences and conclusions before and during reading, and effective use of textbooks. A seven- or fourteen-week course.

RHT 144 Critical Reading (4)
For students who understand literal reading content but who have difficulty with critical comprehension. Develops sophisticated reading skills for practical prose. Recommended for upper-level students contemplating graduate school.
Prerequisite: Completion of Oakland University writing proficiency requirement.

RHT 150 Composition I (4)
A course emphasizing the rhetorical and stylistic demands of college writing through focus on experiential and expressive writing. Students learn to generate, organize and develop their ideas and to make choices as writers that are appropriate to the rhetorical situation. A grade of 2.0 or higher must be achieved to advance to RHT 160.
Prerequisite: Placement by testing or successful completion of RHT 102.

RHT 160 Composition II (4)
Emphasizes the process of writing in increasingly complex rhetorical situations with focus on developing analytic thinking and problem-solving strategies in writing. Students learn methods of academic research including evaluation and documentation of sources and are expected to create at least one research paper. A grade of 2.0 or higher must be achieved to satisfy the university writing proficiency requirement.
Prerequisite: Placement by testing or by a grade of 2.0 or higher in RHT 150.

RHT 320 Peer Tutoring in Composition (4)
Peer tutoring theories and pedagogues, and practical experience in teaching. Work divided between classroom and tutoring assignments. Particularly valuable for majors in the humanities, education, psychology, human services and related fields.
Prerequisite: Completion of the writing proficiency requirement.
Recommended: A grade of 3.0 or better in RHT 160 or its equivalent.

RHT 335 Writing for Human Services Professionals (4)
Development of analytical and collaborative writing skills for human services and training and development professionals. Emphasis on written analysis in a variety of forms including letters, memos, problem statements and proposals among others. Experience in writing individually and cooperatively. Class will include writing workshops and group discussions.
Prerequisite: RHT 160 or satisfaction of university writing proficiency requirement; completion of 60 credits.
Corequisite: RHT 104 if recommended by instructor.

RHT 370 Special Topics (2 or 4)
Special topics in composition and rhetoric. May be repeated under different subtitles.
Prerequisite: RHT 160 or satisfaction of university writing proficiency requirement; completion of 60 credits.

RHT 380 Persuasive Writing (4)
Advanced writing designed to help students develop argumentative and stylistic skill in a variety of rhetorical contexts with application in business, communication, industry and government.
Prerequisite: Satisfaction of Oakland University writing proficiency requirement; completion of 60 credits.

Communication Program

Communication combines theory and practice in a liberal arts major emphasizing how people analyze and make responsible choices in communication contexts. Students acquire critical perspectives in order to evaluate different communication approaches. Students, as communicators, learn to choose the effect their actions have on others. They learn also to choose their roles as citizens in a community. This responsibility requires that they appreciate and respect human differences among cultures, social groups, genders and individuals, and that they create a voice for building personal and public relationships.

Requirements for the liberal arts major in communication, B.A. program

The major requires a minimum of 40 credits in COM or specified cognate courses, of which at least 20 credits must be at the 300 level or above. The required courses are as follows:

1. COM 201 and 303
2. At least 8 credits from the Interpersonal Discourse group: COM 202, 207, 304, 305, 310, 327, 374, 402, 403
3. At least 8 credits from the Public Discourse group: COM 220, 280, 281, 282, 285, 301, 308, 311, 314, 318, 371, 373, 376
4. An advanced writing course: *JRN 200; ENG 380 or 382; RHT 320, 335, 370 or 380
5. An introductory two-semester sequence in a modern language or American Sign Language at the university level or equivalent proficiency
6. COM 399.

*Note: JRN 200 may not be used to fulfill both this requirement and requirements for the JRN minor.

Requirements for the modified major in communication with a linguistics concentration, B.A. program

To earn a communication major with a concentration in linguistics, students must complete 24 credits in communication and 20 credits in linguistics. COM 201 or 202, 303, and at least 4 credits in courses designated as Interpersonal Discourse, and at least 4 credits in courses designated as Public Discourse are required. For linguistics requirements, see the Department of Linguistics section of this catalog.

Requirements for the liberal arts minor in communication

To earn a minor in communication, students must complete 20 credits in communication, including COM 201 or 202, 303, at least 4 credits in courses designated as Interpersonal Discourse, at least 4 credits in courses designated as Public Discourse, and at least 12 credits in COM courses at the 300 or 400 level. No more than 4 credits in independent study, internship or apprentice college teaching may be counted toward the minor.

Requirements for the secondary teaching minor in speech

To earn a secondary teaching minor in speech, students must complete 24 credits in COM courses including COM 201 and at least 8 credits in courses designated as Interpersonal Discourse, and at least 8 credits in courses designated as Public Discourse. (Students should secure approval of an adviser in the communication program for any proposed course selection.)

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

COM 114 Introduction to American Sign Language (4)
Conversational AMESLAN, nonverbal communication, body and facial expression integrated with a basic sign vocabulary, a survey of the various sign systems, and an examination of the psychological, cultural and linguistic aspects of the deaf community.

COM 115 American Sign Language (4)
A continuation of COM 114.
Prerequisite: COM 114.

COM 201 Public Speaking (4)
Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

COM 202 Group Dynamics and Communication (4)
Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

COM 207 Semantics (4)
Identical with LIN 207. *This course satisfies the university general education requirement in language.*

COM 220 Public Speaking on Public Issues (4)
The development, presentation and defense of speeches addressing public issues, including advanced concepts of audience analysis and persuasion, and the use of rhetorical strategies and aids.
Prerequisite: COM 201.

COM 280 Broadcast Announcing (4)
Techniques of speaking before a microphone, editing, reading copy and news broadcasting. Experience includes recording and critique of various styles of delivery.

COM 281 Broadcast Operations (4)
An analysis of non-commercial radio with an emphasis on college broadcasting; includes experience in writing, producing, and performing on-air programming for the university's station.
Prerequisite: COM 280 (may be taken concurrently).

COM 282 Broadcast Managing (2)
Training for positions of leadership in the campus radio station. May be repeated for a total of 4 credits.
Prerequisite: COM 281.

COM 285 Introduction to Broadcasting (4)
A survey of public and commercial radio and television, including their public service, educational and religious functions; and the history, economics, influence and social control of broadcasting.

COM 301 Persuasion (4)
Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.
Prerequisite: COM 201.

COM 303 Communication Theory (4)
Central concepts in communication and the relation of communication to system theory, the acquisition of knowledge, the nature of language and the maintenance of ethical values.
Prerequisite: Sophomore standing.

COM 304 Communication in Organizations (4)
Communication theory and practice within organizational systems.

COM 305 Interpersonal Communication (4)
Elements, purposes and patterns of face-to-face communication and their effects; experience in interviewing, decision making and tutoring.
Prerequisite: One COM course.

COM 308 Forensics Laboratory (2)
Practice for forensic festival or competitive events such as public address and oral interpretation. May be repeated for up to 6 credits.
Prerequisite: COM 201.

COM 310 Philosophy of Rhetoric (4)
Identical with PHL 310.

COM 311 Rhetoric and Public Address (4)
Introduction to the history and theory of rhetorical criticism and public address, contrasting Aristotle's rhetoric with contemporary theories.
Prerequisite: COM 201.

COM 314 Discourse and Content Analysis (4)
Analysis and comparison of spoken and written texts, with the aim of bringing out their basic structures and differences by methods ranging from close reading to categorization and statistics.

COM 318 Argumentation and Debate (4)
Theories of argumentation from the classical to the contemporary period combined with debating experience. Propositions of fact, value and policy are distinguished and related to the construction and selection of argument. Debate experience will focus on the national intercollegiate proposition.
Prerequisite: COM 201.

COM 327 Gender Communication (4)
Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

COM 371 Forms and Effects of Mass Communication (4)
Identical with SOC 371.

COM 373 Social Control of Mass Media (4)
Identical with SOC 373.

COM 374 Cross Cultural Communication (4)
This course satisfies the university ethnic diversity requirement. Identical with ALS 374 and AN 374.

COM 376 Introduction to Television Production (4)
The essential elements of television as a medium, its capabilities and limitations. Practical experience in studio and/or field work.

COM 380 Special Topics in Communication (2 or 4)
Field experience, with faculty supervision, that incorporates student performance in community service organizations with directed study assignments and regular discussion sessions. May not be repeated for credit.
Prerequisite: Junior or senior standing and at least 20 credits of communication courses.

COM 399 Field Experience in Communication (4)
Field experience, with faculty supervision, that incorporates student performance in community service organizations with directed study assignments and regular discussion sessions. May not be repeated for credit.
Prerequisite: Junior or senior standing and at least 20 credits of communication courses.

COM 402 Small Groups (4)
Identical with SOC 402.

COM 403 Communication Networks (4)
The patterns of contact and information transfer in human groups, ranging from the sociometric patterns of small groups, to the formal and informal networks of organizations and the large-scale exchanges of mass societies.
Prerequisite: COM 303.

COM 480 Special Topics Seminar (4)
Group study of topics of special interest chosen by department faculty and students. May be repeated for credit with the instructor's permission.
Prerequisite: Three COM courses.

COM 490 Independent Study (2 or 4)
Special research projects in speech communication. May be repeated for a maximum of 8 credits.
Prerequisite: Junior or senior standing, 12 previous credits in the major, permission of instructor and completion of course application form.

COM 491 Internship (4)
Experience working with professionals in various performing arts and mass communication settings. May be repeated once in a different setting for up to 8 credits.
Prerequisite: Junior or senior standing and permission of instructor. (Permission will normally require completion of at least one writing course beyond RHT 160.)

COM 497 Apprentice College Teaching (2 or 4)
Assisting in teaching an undergraduate course in speech communication, and discussions with the supervising faculty member on the principles, methods and problems of such teaching.
Prerequisite: Junior standing and permission of instructor.

Journalism Program

Requirements for admission to the journalism major

To be admitted to major standing in journalism, students must complete:

1. RHT 150 and 160 (or otherwise satisfy the writing proficiency requirement) and JRN 200 with an average grade of 3.0 or above.
2. 20 credits of corequisite courses with an average grade of 3.0 or above.
3. An introductory two-semester sequence in a modern language or American Sign Language at the university level; or one semester of a modern language at the second-year level or above; or two courses numbered 120 or above in mathematical sciences or computer science.

Requirements for the liberal arts major in journalism, B.A. program

To earn the Bachelor of Arts degree with a major in journalism, students must complete:

1. A minimum of 24 credits in journalism, including JRN 200, 300, 403 and 404 and any two of the following: JRN 310, 311, 312, 320, 321, 332, 340 or 350.
2. 8 credits from the following for an emphasis in print or broadcast journalism: COM 201, 207, 285, 301, 303, 311, 371, 373, 403; or for an emphasis in advertising: JRN 341 and 342 or 343, plus an advertising internship (JRN 404); or for an emphasis in public relations: JRN 351, 352 or 353 (plus internship for major, JRN 404, must be in public relations).
3. Corequisites (36 credits) as follows (these courses, where appropriate, may also satisfy general education or college distribution requirements):

   a. 8 credits from HST 101, 102, 114, 115, 223, 321 or 354.

b. 12 credits from ENG 100, 105, 111, 224, 241, 303, 306, 312, 315, 322, 332, 356, 357 or 369.

c. PS 100 and 4 credits from PS 110, 241, 305, 372, 373 or 377.

d. 4 credits from ECN 150 or 200.

e. 4 credits from SOC 100, AN 101 or 102.

4. Upon completion of 92 credits, majors must submit a Senior Portfolio to the program director. The portfolio must include a resume and samples of published work. Deadlines for submitting the portfolios are: October 1 for students completing degree requirements in April, February 1 for students completing degree requirements in June or August, and May 1 for students completing degree requirements in December.

Requirements for the liberal arts minors in journalism, advertising or public relations

A minor in *journalism* requires a minimum of 24 credits in JRN courses, including JRN 200, 300 and 404.

A minor in *advertising* requires a minimum of 24 credits in JRN courses, including JRN 200, 340, 341, 342 and 404. The internship (JRN 404) must be taken in advertising for that minor. (JRN 343 may be substituted for JRN 342.)

A minor in *public relations* requires a minimum of 24 credits in JRN courses, including JRN 200, 350, 351, 352 and an internship (JRN 404) in public relations. Additional course work to comprise the minimum of 24 credits must be selected from the following: JRN 353, 354, 356, and 360.

Communication majors may not count credits toward the major and any of these minors simultaneously. Journalism majors may not minor in advertising or public relations.

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

JRN 190 Journalistic Style (4)
Training in the style of newswriting with a discussion of basic reporting skills, writing of leads, familiarization with the Associated Press style, basic proofreading and copy editing skills.
Prerequisite: RHT 150.

JRN 200 Newswriting (4)
Training in the practical aspects of news gathering, interviewing and basic newswriting techniques; a discussion of the various journalism media. Some typing skills required.
Prerequisite: Completion of RHT 160 or writing proficiency requirement.

JRN 240 Journalism Laboratory (2)
Work in on-campus publications under the direction of an instructor; may be repeated once.
Prerequisite: JRN 200.

JRN 300 Newspaper Editing (4)
Principles and practices of the newspaper copydesk: copy reading, headline writing, makeup and typography; preparing copy for the printer; some attention to new and developing devices in the print shop, such as those involving the computer.
Prerequisite: JRN 200.

JRN 310 Advanced Newswriting (2 or 4)
Gathering information through wide reading and interviewing, writing objective in-depth news reports, and background on current social, political and economic issues.
Prerequisite: JRN 200.

JRN 311 Public Affairs Reporting (4)
Practical training in the news coverage of local governments including police protection, fire control and the courts. Discussion of federal and state coverage of stories of public interest.
Prerequisite: JRN 200 and PS 100.

JRN 312 Feature Writing (2 or 4)
Practice in writing newspaper and magazine nonfiction features, such as human interest stories and profiles. The course will enable students to develop further their reportorial skills for careers in print journalism. A study of the purposes, styles, types and techniques of the feature story.
Prerequisite: JRN 200.

JRN 313 Magazine Writing and Freelancing (2 or 4)
Writing magazine-length nonfiction articles, with some discussion of the differences between newspaper feature stories and magazine pieces, how to write and sell freelance pieces, legal liabilities and rights of the freelance writer, including a discussion of the U.S. copyright laws.
Prerequisite: JRN 312.

JRN 320 Editorial Writing (2)
Preparing and writing newspaper opinion and commentary usually found on the editorial page; forms and techniques of editorials and the editorial page.
Prerequisite: JRN 200.

JRN 321 Reviewing: Books, Theatre, Movies (2)
Writing newspaper reviews of the literary, visual and performing arts from recent publications, live productions, films and television. Students will be required to purchase tickets and attend various performances.
Prerequisite: JRN 200, 312 and one of the following: ENG 100, 111, 224.

JRN 330 News Photography (2)
Fundamentals of black-and-white photographic production; practice in taking still pictures of people and events for use in newspapers and news magazines; darkroom laboratory work in developing photos.
Prerequisite: JRN 200.

JRN 331 Media Management (2)
Business, corporation and legal problems in the front-office operation of weekly and daily newspapers; industrial and employee magazines; radio and television stations.
Prerequisite: JRN 200.

JRN 332 Radio-Television News (2 or 4)
Fundamentals and techniques of preparing news for broadcasting, especially the different demands of electronic journalism from those of the print media.
Prerequisite: JRN 200.

JRN 338 Advanced Broadcasting (4)
A practical application of skills learned in basic broadcasting classes. Students will produce a weekly newscast. The program, which airs on the (cable) education channel, is completely student produced; may be repeated once.
Prerequisite: JRN 332.

JRN 340 Introduction to Advertising (4)
Advertising in print and electronic media from the standpoint of marketing, its social and legal environment, and strategy decisions in the profession.
Prerequisite: JRN 200.

JRN 341 The Advertising Medium (4)
Further study of the advertising industry, including trends, design, marketing strategy and the technical problems of planning a product campaign.
Prerequisite: JRN 340. MTH 012 recommended.

JRN 342 Case Studies in Advertising (4)
The study of actual case histories of various companies and projects as well as the analysis of problems within a market. An assigned case study is required.
Prerequisite: JRN 340 and 341.

JRN 343 Direct Approaches in Advertising (2 or 4)
The study of the effect of direct mail, circular and similar forms of advertising on ad agencies, manufacturers, newspapers, magazines and television and strategies for the future.
Prerequisite: JRN 340.

JRN 344 Advertising Copywriting (4)
The planning, research and writing that goes into promotion of a company, product or person as part of an advertising campaign.
Prerequisite: JRN 340.

JRN 350 Introduction to Public Relations (4)
An overview of the practices of public relations and its potential impact on various audiences. Study of basic public relations tactics, including media relations, community relations, internal communications, public affairs and investor relations.
Prerequisite: JRN 200.

JRN 351 External Public Relations (4)
The study of public relations related to an organization's external audiences such as the news media and local, state and national government officials. Students will study public relations strategies used to interact with these groups, including media relations, legislative lobbying and special events.
Prerequisite: JRN 350.

JRN 352 Internal Public Relations (4)
The study of public relations related to internal audiences of an organization. In-depth discussion of the shaping of internal culture via public relations vehicles such as newsletters/publications, general memos/ announcements, videotapes and face-to-face employee communications.
Prerequisite: JRN 350.

JRN 353 Public Relations and the News (4)
A study of the relationship between the public relations practitioner and members of the news media. Students will focus on understanding the differing needs of the news media and on using various public relations vehicles to reach targeted audiences via the media. Course includes writing weekly news releases.
Prerequisite: JRN 350.

JRN 354 Case Studies in Public Relations (4)
The study of actual public relations efforts of various companies and organizations. Students will take on the role of public relations practitioners for a fictitious organization and develop public relations goals, objectives, tactics and programs to deal with situations that affect the organization.
Prerequisite: JRN 350, 351, 352.

JRN 356 Video for Public Relations (2)
Understanding the elements involved in producing corporate videos, including an introduction to the technology of video, the applications of video to public relations needs and development of the video "treatment" for client presentation.
Prerequisite: JRN 350.

JRN 360 Special Topics in Public Relations (2)
Various specialties offered to students. Subjects change from semester to semester, with some opportunity for independent study. May be repeated under different subtitles.
Prerequisite: JRN 350.

JRN 401 Advanced Photojournalism (4)
Photography in the news media including work in use of 35mm SLR cameras, darkroom techniques and a brief discussion of marketing for publication.
Prerequisite: JRN 330.

JRN 402 Ethical Issues in the Media (2 or 4)
A study of professional ethics with an emphasis on print journalism, though helpful and applicable to electronic journalism as well. Discussion format where students analyze a series of factual problems that arise in daily media operations.
Prerequisite: JRN 200 or junior standing.

JRN 403 Law of the Press (4)
State and federal laws dealing with libel, contempt of court, right of privacy, copyright and other legal matters affecting newspapers, radio and television, and other media.
Prerequisite: JRN 300, or pre-law student.

JRN 404 Journalism Internship (4)
A full- or part-time internship on a weekly or daily newspaper, radio or television station, or with a public relations or advertising office for one semester. Open only to students in the journalism program, usually in the senior year. May be repeated once in a different medium.
Prerequisite: JRN 200 and three other JRN courses.

JRN 480 Special Topics in Journalism (2 or 4)
Various specialties offered to students. Subjects change from semester to semester, with some opportunity for independent study. May be repeated under different subtitles.
Prerequisite: JRN 200.

JRN 490 Independent Study (2 or 4)
Individual research projects in journalism.
Prerequisite: Junior or senior standing, 12 previous credits in the major, permission of instructor and completion of the course application form.

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

529 VARNER HALL (810) 370-2420

Chairperson: *William E. Bezdek*

Professors emeriti: *Nahum Z. Medalia, Jesse R. Pitts*

Professors: *Peter J. Bertocci, Judith K. Brown, James Dow, Jacqueline R. Scherer*

Associate professors: *William E. Bezdek, Harry Gold, Albert J. Meehan, Gary Shepherd, Richard B. Stamps, Donald I. Warren*

Assistant professors: *Kevin E. Early*

Special lecturer: *Michael C. Ponder*

Chief advisers: *Gary Shepherd (Sociology), Peter J. Bertocci (Anthropology)*

The Department of Sociology and Anthropology offers two separate majors leading to a Bachelor of Arts degree. Sociology is the scientific study of society and is of particular interest for students who wish to examine important social problems. Undergraduate anthropology includes course work in both cultural and physical anthropology. In sociology and anthropology, students are required to study research techniques and acquire skills in theoretical analysis. Both majors are designed to allow maximum flexibility enabling students to pursue their own intellectual interests.

Students may also select a combined major in both disciplines. The department actively participates in the following concentrations: archaeology, human and industrial relations, social justice and corrections, social service, urban studies and women's studies.

Requirements for the liberal arts majors in sociology and anthropology, B.A. program

To earn a Bachelor of Arts in Sociology,* students must complete SOC 100, 202, 204, 400 and one anthropology course, plus at least 20 additional credits in sociology (of which 4 may be taken in anthropology) for a minimum of 40 credits.

To earn a Bachelor of Arts in Anthropology,* students must complete AN 101, 102 and SOC 100, plus at least 28 additional credits in anthropology for a minimum of 40 credits (of which 4 may be taken in sociology). LIN 301 may be substituted for one departmental course.

To earn a Bachelor of Arts with a combined major in Sociology/Anthropology,* students must complete a minimum of 20 credits in sociology and 20 credits in anthropology; these must include SOC 100, 202, 204; AN 101 and 102 and either SOC or AN 400.

*No more than 8 total credits counted toward the major may be taken in SOC/AN 190, 392, 399 or 480.

Requirements for modified majors in sociology and/or anthropology with a linguistics concentration, B.A. program

To earn a modified major in sociology with a concentration in linguistics, students must complete a minimum of 26 credits in sociology, including SOC 100, 202, 204, 400 and a minimum of 20 credits in linguistics.

To earn a modified major in anthropology with a concentration in linguistics, students must complete AN 101 and 102, plus a minimum of 12 additional credits in anthropology and 20 credits in linguistics.

For additional information, see the Department of Linguistics section of the catalog.

Requirements for a liberal arts minor in sociology or anthropology

To earn a minor in sociology, students must complete SOC 100 plus a minimum of 16 additional credits in sociology, 12 of which must be at the 300-400 level. To earn a minor in anthropology, students must complete AN 101 and 102 plus a minimum of 12 credits in anthropology courses at the 300-400 level.

Departmental honors

To earn departmental honors in sociology, students must have taken at least 20 of their major credits at the 300-400 level, have taken a minimum of 20 credits of their sociology major course work at Oakland University, have received a grade point average (GPA) of 3.60 in major course work, and receive recommendations from two departmental faculty members.

To earn departmental honors in anthropology, students must have taken at least 16 credits in the major at the 300 level or above, have taken a minimum of 20 credits of their anthropology major course work at Oakland University, have received a GPA of 3.60 in major course work, and receive recommendations from two departmental faculty members.

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

ANTHROPOLOGY

AN 101 Human and Cultural Evolution (4)
Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment. *This course satisfies the university general education requirement in social science.*

AN 102 Culture and Human Nature (4)
Introduction to cultural and social anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment. *This course satisfies the university general education requirement in social science. It also satisfies the university ethnic diversity requirement.*

AN 190 Current Issues in Anthropology (4)
Designed for the general student, this course examines issues of current interest in anthropology. Topic will be announced at the time of offering.

AN 210 Anthropology in the Modern World (4)
Introduces applied anthropology through an examination of cross-cultural training in various fields, such as business, education, economic development, cultural resource management and medical anthropology. Various data collection methods and techniques as well as interpretive strategies are examined. Prerequisite: AN 102.

AN 222 Introduction to Anthropological Archaeology (4)
Introduces the field of anthropological archaeology through examination of theory, data collection methods and techniques, and interpretive strategies used to understand human histories, life-ways and cultural processes.

AN 251 Peasant Society and Culture (4)
The peasant as a social type, the peasant's role in the making of great civilizations and forces for change in peasant societies, especially in the non-Western world.
Prerequisite: AN 102.

AN 271 Magic, Witchcraft and Religion (4)
Anthropological theories of magic, witchcraft and religion: human interaction with beings, creatures and forces that manifest extraordinary powers; folk beliefs of nonliterate people; and transformation of social systems by religious movements. Identical with REL 271.
Prerequisite: AN 102 or sophomore standing.

AN 282 The Prehistoric Origins of Civilization (4)
The development and spread of culture in the period before written history, using archaeological evidence from Neolithic Old World and New World sites. Cultural evolution from early farming and settlement to the rise of complex civilization.
Prerequisite: AN 101.

AN 300 Culture, Society and Technology (4)
Technology has played a critical role in all human evolution. This course provides a historical overview of the ways in which culture has shaped technology and how technology changes cultures. It emphasizes the impact of technology on modern cultures, especially technology emanating from the Western industrial revolution. *This course satisfies the university general education requirement in social science.*

AN 302 Anthropological Research Methods (4)
Training in: research information storage and retrieval; field research instrumentation (photography, cinematography, video and audio recording, field computers); use of archives and data banks; plus participant observation, ethnomethodology and semantic analysis.
Prerequisite: AN 102 or SOC 100.

AN 305 The Life Course in Anthropological Perspective (4)
Socialization from infancy to old age will be considered with examples drawn from a variety of non-industrial societies as well as the literature on primates. Theories of human development across cultures will be viewed in light of this evidence. Identical with WS 305.
Prerequisite: AN 102 or WS 200.

AN 307 Culture and Society Through Film (4)
The systematic study of selected peoples from different cultures through the ethnographic film and appropriate readings, lectures and discussions. Students learn to evaluate cultural data according to various anthropological concepts and methodologies. *This course satisfies the university general education requirement in social science.*
Prerequisite: Junior standing or permission of instructor.

AN 310 Psychological Anthropology (4)
Focuses on the relationship of culture and the individual; considers personality, perception, dreams, and other areas of psychological functioning in cross-cultural perspective and in relation to culture and personality theory.
Prerequisite: AN 102.

AN 315 Studying Our Culture: Technique and Analysis (4)
The different ways that people in different cultures and subcultures have of seeing their experiences. The anthropologist's methods of studying and analyzing these differences. Includes field work practice.
Prerequisite: AN 102 or SOC 100 or PSY 100.

AN 320 Law and Society (4)
Identical with SOC 320.
Prerequisite: SOC 100 or AN 102.

AN 322 Subsistence and Technology in Nonindustrial Society (4)
Technologies of different cultures; implications for the individual, society and cultural survival; ecology of tribal, peasant and industrial cultures with emphasis on subsistence technology of non-Western cultures. Identical with ENV 322.
Prerequisite: AN 102.

AN 331 Racial and Ethnic Relations (4)
This course satisfies the university ethnic diversity requirement. Identical with SOC 331.

AN 333 Medical Anthropology (4)
Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.
Prerequisite: AN 102 or SOC 100 or PSY 100 or HBS 200.

AN 337 Women's Lives in Cross-Cultural Perspective (4)
The lives of women in a variety of tribal and peasant societies, noting how beliefs, rituals and taboos shape the stages of the female life course and how culture influences women's reproductive and economic roles. Identical with WS 337.
Prerequisite: AN 102 or WS 200.

AN 361 Peoples and Cultures of India (4)
A survey of contemporary society and culture on the Indian subcontinent, with focus on India, Pakistan and Bangladesh; emphasis on social structure, folk religion and the problems of socio-cultural change.
Prerequisite: AN 102 or IS 240.

AN 362 Peoples and Cultures of China (4)
An anthropological study of China, stressing the variety of cultural and ecological adaptations characteristic of that complex society.
Prerequisite: AN 102 or IS 210.

AN 370 Archaeology of Mesoamerica (4)
The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.
Prerequisite: AN 101 or 102.

AN 371 Peoples and Cultures of Mexico and Central America (4)
Anthropological studies of Indian and Mestizo societies in Mexico and Guatemala, including their separate socio-economic patterns and their integration into a dualistic social system.
Prerequisite: AN 102 or IS 250.

AN 372 Indians of South America (4)
A survey of the native South Americans. Includes warriors of the jungles, peasants and herders of the mountains, nomads of the plains and forests, and subsistence fishermen of the southern coasts.
Prerequisite: AN 102 or IS 250.

AN 373 Ethnography of Communication (4)
Identical with ALS 373.

AN 374 Cross-Cultural Communication (4)
This course satisfies the university ethnic diversity requirement. Identical with ALS 374/COM 374.

AN 375 Language and Culture (4)
This course satisfies the university ethnic diversity requirement. Identical with ALS 375.

AN 380 Archaeology of North America (4)
The evolution of native North American cultures (including Mesoamerica) from 50,000 B.C. to 1500 A.D., with emphasis on the ecological factors in the development of culture areas.
Prerequisite: AN 101.

AN 381 Peoples of North America: Indians and Inuit (Eskimos) (4)
The culture of certain North American societies and their adaptation to Western contact. *This course satisfies the university ethnic diversity requirement.*
Prerequisite: AN 102.

AN 382 Advanced Physical Anthropology (4)
The emergence and diversification of the human species in relation to the morphology and ecology of both modern and fossil man, including physical and physiological variation (sex, race and age), climatic adaptation and population genetics.
Prerequisite: AN 101.

AN 383 Methods in Anthropological Archaeology (4)
Instruction and field research, including site location, excavation and artifact analysis, and conservation. May be repeated once for credit.
Prerequisite: AN 101.

AN 391 Primate Behavior (4)
Various bio-social factors that aid the nonhuman primates in their adaptation to the environment, implications for human behavior, classroom discussions and field studies.
Prerequisite: AN 101 or 102 or PSY 100 or SOC 100 or HRD 301.

AN 392 Current Problems in Anthropology (2 or 4)
Seminar in which a topic or problem is studied in depth. Each seminar requires independent readings and writing.
Prerequisite: Permission of instructor.

AN 399 Field Experience in Anthropology (4)
Field experience in anthropology with faculty supervision. An academic project related to the departmental discipline which incorporates student performance in an occupational setting. May not be repeated for credit.
Prerequisite: 16 credits in anthropology, of which at least 8 must be at the 300/400 level, and permission of instructor.

AN 400 Theories of Society and Culture (4)
Acquaints students with the major theoretical foundations of modern anthropology. Identical with SOC 400.
Prerequisite: AN 102 or SOC 100.

AN 401 Social Anthropology (4)
Examines social structure and social organization in anthropological perspective. Entails the study of economic, political, religious and kinship systems in the social life of man.
Prerequisite: AN 102.

AN 410 Human Adaptation (4)
This course examines current theory on the cultural and biological adaptation of human groups to natural and social environments. Identical with ENV 410.
Prerequisite: AN 101, 102 or 322.

AN 420 Clinical Anthropology (4)
This course explores cross-cultural explanations of illness and "deviant" behavior from both patients' and healers' perspectives, using case studies, films and the guest presentations of practitioners. It stresses the anthropological contribution to therapeutic strategies in the treatment of physical and mental illness.
Prerequisite: Three sociology or anthropology courses.

AN 430 Systems of Wealth and Power in Anthropological Perspective (4)
Concepts and methods of political and economic anthropology, emphasizing the interrelated state of political and economic phenomena, with particular reference to preindustrial, non-Western societies.
Prerequisite: AN 102.

AN 480 Independent Study and Research (2 or 4)
A tutorial in which the student will pursue a course of reading and research with the instructor. May be repeated only once for credit.
Prerequisite: Permission of instructor.

AN 497 Apprentice College Teaching (2 or 4)
Supervised participation in teaching an undergraduate course in anthropology, combined with readings and discussion of teaching objectives and methods appropriate for anthropological presentation. May be taken only once for credit toward a major.
Prerequisite: Senior anthropology major and permission of instructor.

SOCIOLOGY

SOC 100 Introduction to Sociology (4)
Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, and class. *This course satisfies the university general education requirement in social science.*

SOC 190 Current Issues in Sociology (4)
Designed for the general student, this course will examine issues of current interest in sociology. The topic will be announced at the time of the offering.

SOC 202 Introduction to Methods of Social Research (4)
The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research.
Prerequisite: SOC 100.
Corequisite: SOC 204.

SOC 203 Social Statistics (4)
Interpretation of social data by quantification and statistical reasoning.
Prerequisite: Two years of high school mathematics.

SOC 204 Using Computers in Social Research (4)
This 2-credit laboratory course provides students with hands-on experience in computing activity, including mainframe and microcomputers, and is designed to show how computers are used in social research. Statistical software packages will be used. Graded S/U.
Corequisite: SOC 202.

SOC 205 Current Social Problems (4)
This course presents sociological approaches to analyzing social problems. Particular attention is given to evaluation of the causes and consequences of social problems, as well as of their proposed solutions.

SOC 206 Self and Society (4)
Examines the reciprocal relationship between the individual and the group. Emphasizes the social roots of human nature, the self, social interaction, definitions of reality, socialization and social character. *This course satisfies the university general education requirement in social science.*

SOC 240 Sociology of Crime and Punishment (4)
An introduction to the study of crime and the system of criminal justice in the United States. Provides an overview of different theories of crime, the production of crime statistics, types of offenses, the role of the police, courts and correctional agencies, and public policy. The course also includes a comparison of street crime with white-collar crime.
Prerequisite: SOC 100. *Recommended for all students in the social justice and corrections concentration.*

SOC 300 Alcohol, Drugs and Society (4)
An overview of the sociology of substance use and abuse. This course will explore ways in which substance use and abuse problems can be addressed by policy makers, health care professionals and practitioners in the field of substance abuse.
Prerequisite: SOC 100.

SOC 301 Social Stratification (4)
The concepts of class, caste and race in relation to social conflict and social integration. Students will study these problems in a cross-cultural perspective, emphasizing comparative materials.
Prerequisite: SOC 100.

SOC 305 Sociology of Religion (4)
An analysis of the social components of religious experience, meaning and behavior; emphasis on the relationship between organized religions and other social institutions and such processes as conversion, commitment, sectarianism, accommodation and secularization. Identical with REL 305.

SOC 310 Introduction to Canada (4)
An interdisciplinary study of the peoples of Canada and their traditional and modern civilizations. Identical with IS 310.

SOC 314 The Social Context of Social Work (4)
A study of the social work profession and the social context of welfare policies; the relationships between social structure and the development of social work practice; and public and private welfare organizations.
Prerequisite: SOC 100 or two courses in psychology or human resource development.

SOC 315 Social Welfare Policies (4)
Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined.
Prerequisite: SOC 100 or 314.

SOC 320 Law and Society (4)
This course explores the concept of law and its expression in different societies and cultural contexts. The comparative development of legal institutions is studied in relationship to social structure. The organization of the legal system and profession is studied as related to the capacity of the law to affect behavior as an instrument of social control. Identical with AN 320.
Prerequisite: SOC 100 or AN 102.

SOC 323 Juvenile Delinquency and its Social Control (4)
Nature and types of juvenile delinquency, the relation of juvenile delinquency to the stress of adolescence and the specific social situation, methods of preventing delinquency or its recurrence.
Prerequisite: SOC 240.

SOC 324 Work and the Law (4)
Identical with LE 324.

SOC 325 Crime, Drugs and the Criminal Justice System (4)
Considers social control of alcohol and drugs, the process of criminalization, agents of social control, violence, drugs, and the law. Focuses on ways in which these phenomena are addressed by policy makers, formal agents of social control (police, courts, and corrections), health care professionals, and community agencies.
Prerequisite: SOC 100.

SOC 327 Police and Society (4)
A study of police techniques and problems, of deviant citizen-police relations, and of social control in a field where power is high and visibility is relatively low. Topics include the defenses against corruption and the containment concept of police.

SOC 328 Sociology of Health and Medicine (4)
The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine.
Prerequisite: SOC 100.

SOC 331 Racial and Ethnic Relations (4)
A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. *This course satisfies the university ethnic diversity requirement.* Identical with AN 331.
Prerequisite: SOC 100.

SOC 335 The Family (4)
A comparative and historical study of the family. Identical with WS 335.
Prerequisite: SOC 100 or WS 200.

SOC 336 Sociology of Gender (4)
The impact of ideological and technological change on the statuses, occupations and relationship of males and females. Identical with WS 336.
Prerequisite: SOC 100 or WS 200.

SOC 338 Moral Socialization (4)
The cultural, social and psychological dimensions of "morality"; how moral agreements are reached, and how they are communicated to group members; how individual members incorporate these agreements into their personal values and behaviors.

SOC 345 Urban Sociology (4)
The social structure, culture and ecology of early and contemporary urban communities; institutional responses to the problems of modern urban life.
Prerequisite: SOC 100.

SOC 346 Communities (4)
This course focuses on the forms and functions of local communities, including neighborhoods and social networks. Both theoretical and applied implications of these structures for community organization and development are explored.
Prerequisite: SOC 100.

SOC 350 The Transformation of the Workplace (4)
A study of how high technology, computers, and a shift in the economic base of employment are transforming work in contemporary society, why this is happening, and the social, psychological, political and cultural impact of change in the workplace.
Prerequisite: SOC 100.

SOC 352 Women and Work (4)
A sociological study of women's domestic and labor market activity in historical context, with emphasis on understanding the causes and consequences of sex segregation. Identical with WS 352.
Prerequisite: SOC 100 or WS 200.

SOC 353 Seminar in Socio-Technical Systems (4)
This seminar introduces students to the growing field of inquiry that integrates the social and technical dimensions of work. Issues within the immediate, primary workplace, and the organization and social system that are related to the workplace are examined.
Prerequisite: One social science methods course.

SOC 354 Quality of Work Life (4)
Can small groups in large organizations promote the personal growth of employees and achieve corporate goals of productivity? The use and abuse of quality circles, the tension between personal development, corporate culture, and the ideology of worker/management relations.
Prerequisite: SOC 100.

SOC 357 Industrial Sociology (4)
The relationship between industrial and business organizations and the community; the study of occupations, labor unions, informal work groups and the character of American occupational life.
Prerequisite: SOC 100.

SOC 359 Human Factors in Quality Control (4)
Focuses on ways to attain quality in societies based on mass production. Examines underlying social principles and specific industrial practices that encourage quality production, particularly in large-scale manufacturing and service industries that are bureaucratically organized.
Prerequisite: One social science course; two years of high school math recommended.

SOC 371 Forms and Effects of Mass Communication (4)
Techniques of disseminating ideas and information through the mass media; evaluation of the effect of mass media on values of individuals and policies of institutions. Identical with COM 371.
Prerequisite: SOC 100 or sophomore standing.

SOC 373 Social Control of Mass Media (4)
The major sociological factors that control the informational content of the mass media; differences between the structures and processes of control in the print and electronic sectors of the media. Identical with COM 373.
Prerequisite: SOC 371.

SOC 376 Sociolinguistics (4)
Identical with ALS 376.

SOC 381 Theories of Modern Organizations (4)
Modern society is based upon organizational life. Topics include: theories of human organization, as well as the study of bureaucracies, features of organizations and the effects of organization on American culture.

SOC 392 Current Problems in Sociology (2 or 4)
Seminar in which a topic is studied in depth. Each seminar requires independent readings and writing.
Prerequisite: Permission of instructor.

SOC 399 Field Experience in Sociology (4)
Field experience in sociology with faculty supervision. An academic project related to the departmental discipline that incorporates student performance in an occupational setting. May not be repeated for credit.
Prerequisite: 16 credits in sociology, of which at least 8 must be at the 300/400 level, and permission of instructor.

SOC 400 Theories of Society and Culture (4)
Acquaints students with the major theoretical foundations of modern sociology. Identical with AN 400.
Prerequisite: SOC 100 or AN 102.

SOC 401 Survey and Interview Techniques (4)
Acquaints students with field interview techniques, questionnaire design, scaling and index construction, experimental and quasi-experimental designs, plus program evaluation research techniques.
Prerequisite: SOC 100.

SOC 402 Small Groups (4)
The study of small group relations and the informal understandings, codes and conventions that they generate. Considers dynamics of individuality, leadership, conformity and esprit de corps in a group setting. Identical with COM 402.
Prerequisite: SOC 100.

SOC 403 Computer Packages in Social Science (4)
Principles of packaged programs, with practice in data editing and analysis with SPSS (Statistical Package for the Social Sciences) and BMDP. Comparative merits of different packages.
Prerequisite: SOC 203 or equivalent.

SOC 408 Population Dynamics (4)
Historical analysis of world population growth, focusing on relationships among population size, population policy, and social and economic development.
Prerequisite: SOC 100.

SOC 412 Police Budgeting and Personnel Management (4)
Finance and resource allocation methods used by local and state police agencies. Topics include funding sources, expenditure patterns, resource allocation techniques and stakeholder influence. Identical with PS 412.

SOC 420 Research and Policy Evaluation in Criminal Justice (4)
Overview of problems of conducting research and policy evaluation in criminal justice agencies, including history of such research and "problem oriented" approach to policing.
Prerequisite: SOC 240.

SOC 425 Corrective and Rehabilitative Institutions (4)
Problems of interaction within the institution are analyzed, e.g., between inmate, guard, supervisor and rehabilitation specialist; development of inmate subcultures; dynamics of crisis (e.g., riots); and equilibrium.
Prerequisite: SOC 240.

SOC 430 Internship in Criminal Justice (2 or 4)
Field placement and supervision of students in police, prison, and parole organizations and agencies.
Prerequisite: Enrollment in criminal justice concentration and written permission of instructor.

SOC 437 Sociology of the Courts (4)
The roles of judges, court officers, jury and attorneys are described and analyzed in the context of their professional matrix.
Prerequisite: SOC 100 and SOC 240.

SOC 455 Contemporary Work Roles, Careers and Labor Markets (4)
The social dimensions of occupational specialization in modern society. The impact of social and technological labor market changes in the supply and demand for workers in various occupations. Industrial and professional career patterns are studied in relationship to values, status, prestige, lifestyle, occupational satisfaction and job-related stress.
Prerequisite: SOC 100.

SOC 460 Political Sociology (4)
Sociological factors which influence distribution of power within a society: political communication, maintenance of political consensus, the revolution process, the structure of political parties and the emergence of new states.
Prerequisite: SOC 100.

SOC 465 Sociological Perspectives on Aging (4)
Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation.
Prerequisite: SOC 100 and junior standing or above.

SOC 480 Independent Study and Research (2 or 4)
Directed individual reading and research.
Prerequisite: Permission of instructor.

SOC 497 Apprentice College Teaching (2 or 4)
Supervised participation in teaching an undergraduate course in sociology, combined with readings and discussion of teaching objectives and methods appropriate for sociological presentation. May be taken only once for credit toward a major.
Prerequisite: Senior sociology major and permission of instructor.

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, dentistry or other health sciences.

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. Recent biochemical instrumentation acquisitions include a flow cytometer, a radioisotopic image analyzer, and high performance capillary electrophoresis system.

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 2.5 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 111, 113, 319, 320, 321, 322, 323, 324, 341, 345, or 393.
2. Thirty-two credits of chemistry, including CHM 144 - 145 (or 164 - 165), 147-148, 225, 234-235, 237 (or 209), 342, and 343.
3. Twelve or more credits of biochemistry including BCM 453, 454, and 457 and additional credits selected from the following courses: BIO 407, 423, 439, 440, 441; CHM 458, 553, 581; or BCM 490.

4. Corequisites in mathematics (MTH 154 and 155) and physics (PHY 151 and 152). Statistics (STA 226) is a recommended elective.
5. Admission to major standing as described above at least three semesters prior to graduation.

Program Honors

Program honors may be granted to graduating seniors in biochemistry on the basis of high academic achievement (minimum 3.60 overall grade point average) and excellence in biochemical research at Oakland University.

Course Offerings

The program offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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 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 457 Biochemistry Laboratory (2)
Techniques of extraction, separation, identification and quantification of biomolecules, including electrophoresis, chromatography and radioisotope techniques, with emphasis on mathematical treatment of experimental data. Identical with CHM 457.
Prerequisite or corequisite: 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, pharmacology, 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 in the work place, toxic substance regulations, applied ecology, pollution prevention, air resources, water resources and public environmental policy.

Requirements for the B.S. degree

To earn a Bachelor of Science degree with a major in environmental health, students must complete a minimum of 128 credits:

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 111; CHM 144 (or 164), 145 (or 165), 147-148, 225; PHY 151, 152 (or, for students not considering graduate work, PHY 101 and 102) and 8 credits in mathematics above MTH 121 or 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 specializations, *which must be approved by the program director*. 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 321; CHM 234-235; ENV 355, 386, 387, 388, 474, 484 and IHS 311.

Recommended electives include ENG 381; ENV 364, 372, 373, 452, 461, 470, 486; BIO 407 or CHM 453; BIO 301; PS 353; HST 302 and IHS 312.

Elective courses for the specialization must be approved by the program director.

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 ENV 355, 461; BIO 301 and PHY 158.

Recommended electives include CHM 234-235; BIO 207 or 321, 303, 311, 307 or 319, 327, 333, 373, 375, 407, 481; ENG 381; ENV 311, 322, 368, 372, 373, 386, 484, 486; PS 302, 305, 350, 353; ME 407 and HST 384.

Elective courses for the specialization must be approved by the program director.

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 BIO 301; CHM 234-235; BIO 325 or CHM 453; ENV 461, 484 and 486.

Recommended electives include BIO 207 or 321, 341, 375; CHM 454, 581; ENG 381; ENV 364, 368, 372, 373, 386, 387, 388, 452, 474 and PS 353.

Elective courses for the specialization must be approved by the program director.

Requirements for the liberal arts minor in environmental health

The following 19 credits are required for this minor: ENV 308, 355, 372 or 373, 368 or 461, 484 and 486. An approved Concentration/Minor Authorization Form must be filed three semesters prior to graduation.

Course Offerings

The program offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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. *This course 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 368 Fundamentals of Hazardous Materials Regulations (3)
An introduction to the regulations governing the manufacture, use, storage, transportation, treatment and disposal of hazardous materials. Related management issues of liability, compliance, ethics, assessment, remediation and clean-ups will be discussed.
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 that may adversely affect human health.
Prerequisite: Junior standing in environmental health; BIO 113, CHM 234; physics is desirable.

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.
Prerequisite: ENV 386.

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.
Prerequisite: ENV 386 or 387.

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 Pollution Prevention (3)
Problems of air and water pollution, solid waste management, hazardous material handling, life cycle analyses and pollution control examined from several viewpoints. Solutions to pollution problems, control technologies, practical aspects and compliance with regulations.
Prerequisite: Junior standing in environmental health, CHM 145 (or 165).

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.
Prerequisite: Junior standing in environmental health.

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 111, 113; CHM 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 111, 113; CHM 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), 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, 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 112, 224, 302, 317, 318, 319, 324, 332, 341, 342
History: HST 114, 115, 292, 301, 302, 304, 305, 306, 310, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 323, 361
Linguistics: LIN 303
Music: MUS 335, 336
Political Science: PS 100, 115, 203, 300, 301, 302, 305, 307, 323, 324, 342, 343, 371
Sociology/Anthropology: SOC 100, 205, 315, 331, 357; AN 315, 380, 381

Course Offerings

The concentration offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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). *This course satisfies the university ethnic diversity requirement.*

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. Josuiak (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

Committee: *Carl F. Barnes, Jr. (Art History), Gottfried Brieger (Chemistry), James W. Dow (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, 314; AN 282, 370, 371 or 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, 326; HST 261, 306, 367 and PHY 107.

Students are reminded that professional conservation work requires knowledge in botany and chemistry. Students wishing to enroll in the archaeology concentration should file a minor and concentration authorization form with the coordinator.

Minors in Computer Science and Computing

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

The School of Engineering and Computer Science offers the following two minors, which are available to students in the College of Arts and Sciences.

The minor in computer science is suitable for students with majors in mathematics, physics, chemistry or biology, who may wish to emphasize numerical, scientific and engineering aspects of computing.

The minor in computing is suitable for students with majors in English, history, modern languages, philosophy, psychology, sociology or anthropology, who 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 for each of these minors, see the Department of Computer Science and Engineering section of this catalog.

Concentration in Criminal Justice

Coordinator: *Albert J. Meehan (Sociology)*

The concentration in criminal justice 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, 342; SOC 240*, 327, 437
2. 12 credits from PHL 321; PS 343; PSY 341; SOC 300, SOC/AN 320, SOC 323, 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 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, 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 the newer interdisciplinary perspectives needed to address today's environmental problems. Short-and long-range implications of human activities are analyzed, with emphasis on the technical and scientific issues.

Requirements for the concentration are a minimum of 28 credits in a planned and approved program of advanced courses, built on introductory work in biology, chemistry, mathematics and physics. Typically the 28 credits would include ENV 308 or 311, plus 16 credits of work at the 300 level or above selected from at least three rubrics. Advanced courses in many departments may be suitable for the concentration. In addition to ENV courses, these include, but are not limited to AN 410; BIO 301, 303, 311, 373, 375; EGR 407; HST 384; PS 350 and 353. At least 16 credits must be in non-duplicative course work with another major. A Concentration/Minor Authorization Form with an approved set of courses must be filed at least three semesters prior to graduation. Consult the program coordinator for details about course sequences and scheduling.

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), 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, Communication and Journalism; and Sociology/Anthropology, offers multiple perspectives for examining theoretical and critical issues of film as art and communication. 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, 392; two courses chosen from among CIN 300, 301 and 302; and two courses chosen from AH 367, AN 307, CIN 450, LIT 251 and COM 303. In special circumstances, CIN 499 may be substituted for one of the above courses with permission of the concentration coordinator.

Course Offerings

The concentration offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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. *This course satisfies the university general education requirement in arts and the university ethnic diversity requirement.*

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 350 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.

CIN 450 Advanced Topics in Film (4)
Topics to be selected by instructor.
Prerequisite: A course in film or permission of instructor.

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 Gerontology

Committee: *Elinor B. Waters (Human Resource Development), Judith K. Brown (Sociology-Anthropology), 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 323 and SOC 465
2. Research methods course: PSY 250 or SOC 202/204
3. Required advanced course: GRY 400
4. Electives: HRD 369 or 490, 431, 451; PSY 371; SOC 314 or 315, and GRY 480

Course Offerings

The concentration offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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, 352, 357, 381
2. ECN 150 (or ECN 200 or 210)
3. HST 302
4. Two electives from the following: HST 210, 304; LE/SOC 324; LE 326; PHL 316; PSY 333; COM 304; SOC 354, 455; SOC/AN 480.

Concentration in Michigan Studies

Coordinator: *John B. Cameron (Art History)*

Committee: *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. Students wishing to enroll in the Michigan studies concentration should file a minor and concentration authorization form with the coordinator.

Course Offerings

The concentration offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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
ENV 373	Water Resources (3)
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 120, 142 and 144. RHT 142 and 144 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 on 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 cross-listed with departmental courses having different prerequisites.

Course Offerings

The concentration offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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, 18th and 19th 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 304 The Islamic Tradition (4)
Selected ideas and institutions in the history of Islam.

REL 311 The Bible as Literature (4)
This course satisfies the university general education requirement in literature. Identical with ENG 305.

SYSTEMATIC STUDIES

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

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 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 321, 323 or 381
3. Field experience: PSY 371, 399; SOC 399 or equivalent course
4. Statistics: SOC 203 or equivalent course, PSY 251; STA 225 or 226
5. One elective from the following: HI 361; PSY 332; SOC 300, 328, 331, 335 or 465.

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 301, 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, 364; HST 302; PS 307, 350, 353; SOC 315, 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: *Kelli Carpenter (Student Liaison), Jennifer Fauss (Student Liaison), Barbara Hamilton (Rhetoric), Barbara Mabee (Modern Languages), Fatma Mili (Computer Science), C. Michelle Piskulich (Political Science), 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 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. Students 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; students may not receive double credit for the same course taken under the WS rubric and the departmental rubric.
3. Three additional women's studies 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

The concentration offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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 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 322 Women in Modern America (4)
Identical with HST 322.

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 361 History of American Families (4)
This course satisfies the university ethnic diversity requirement. Identical with HST 361.

WS 362 History of African-American Women (4)
This course satisfies the university ethnic diversity requirement. Identical with HST 362.

WS 375 Psychology of Women (4)
Identical with PSY 375.

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 must select a major in addition to the preprofessional studies designation, prelaw studies. Students should choose a major in which they have both interest and aptitude; the particular major is less important for admission to law school than the overall success in courses chosen. Success is generally measured by the cumulative grade point average and the score on the Law School Admission Test (LSAT).

Rather than mastery of any particular subject matter, law schools require that incoming students possess certain basic skills. These skills include critical reasoning and the ability to write and speak in a coherent and precise manner. Students are advised to select rigorous course work aimed at developing strong reading, writing and reasoning skills; and to plan undergraduate course work with an eye toward long-term plans within the legal profession.

Because there is no set of specific courses necessary for admission to or success in American law schools, there is no formal prelaw curriculum at Oakland University. However, students are directed to consider courses in five categories as described below and to choose only those courses which they believe will help them to develop skills or acquire knowledge which may be beneficial during or after law school. None of these courses are required or necessarily recommended for all prelaw students.

1. The development of fundamental abilities of reasoning and written communication. Although most introductory courses in all of the liberal arts disciplines serve this purpose, particularly relevant courses are: ENG 380, PHL 102 and 103.
2. Oral communication. The following courses are recommended: COM 201, 220, 301 and THA 110.
3. The law in relationship to other disciplines. Suggested courses are: SOC/AN 320; ECN 378; PHL 319; PS 241, 342, 343; SOC 324 and 437.
4. Courses related to business operations. The following courses are suggested: ACC 200, MIS 300, MKT 302, CSE 125 and ECN 150 or 200.
5. Courses for students who do not have a definite intention of attending law school but who wish to be better informed about the law or to experience the unique style of legal instruction. The following courses are suggested: ENV 461, JRN 403 and MGT 350.

Students are cautioned against overemphasizing law-related courses in their undergraduate training. Law schools virtually never give credit for these courses, either for placement or graduation, and are inclined to believe an education featuring these courses to be too narrow in scope. 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 are required of, or restricted to, prelaw students.

Students interested in a career in law should meet with an academic adviser to discuss course selection and admission procedures. Advising is available through either the College of Arts and Sciences Advising Office or Martha T. Zingo in Political Science.

Premedical Studies

Students who plan to attend medical school upon graduation and who entered the college in the premedical studies curriculum must select a major in addition to this preprofessional studies designation. Most students planning a career in the medical professions (medicine, dentistry and optometry) choose biological sciences for their major as the requirements for this major most closely match the recommended plan of study for students seeking admission to the various medical schools in Michigan and elsewhere.

Majors in chemistry, biochemistry and physics with a minor in biology would also provide excellent preparation. It is important for students interested in other majors to discuss this option with an adviser and to consult the requirements listed in the Concentration in Preprofessional Studies in Medicine, Dentistry and Optometry (the concentration itself does not constitute a major).

Students should consult with Egbert Henry or John Cowlishaw (Biological Sciences) or any one of the faculty listed with the concentration and with an adviser in the College of Arts and Sciences Advising Office for assistance in planning their program.

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 111, 113 and 116; CHM 144-145 (or 164-165) and 147-148; or PHY 101, 102 (or 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 111 and CHM 144, respectively, do not apply to the science minor (nor do CHM 201, 300 and BIO 300).

Three-science minor

Complete the following: BIO 111, 113 and 116; CHM 144-145 (or 164-165) and 147-148; and PHY 101, 102 (or 151, 152) and 158.

Geography Course Offerings

The following courses offered under the geography rubric are available only to students fulfilling requirements for the elementary education teaching minor in social sciences. Students in other programs may register for these courses under the home department rubric as indicated below.

GEO 106 Earth Sciences (4)
This course satisfies the university general education requirement in the natural sciences. Identical with PHY 106.

GEO 107 Physical Geography (4)
This course satisfies the university general education requirement in the natural sciences. Identical with PHY 107.

GEO 210 Introduction to China (4)
This course satisfies the university general education requirement in international studies. Identical with IS 210.

GEO 220 Introduction to Japan (4)
This course satisfies the university general education requirement in international studies. Identical with IS 220.

GEO 230 Introduction to Africa (4)
This course satisfies the university general education requirement in international studies. Identical with IS 230.

GEO 250 Introduction to Latin America (4)
This course satisfies the university general education requirement in international studies. Identical with IS 250.

GEO 270 Introduction to the Middle East (4)
This course satisfies the university general education requirement in international studies. Identical with IS 270.

HONORS COLLEGE

231 VARNER HALL (810) 370-4450

Director: *Brian F. Murphy (English)*

Council: *Vincent B. Khapoya (Political Science), Sally M. Silk (Modern Languages and Literatures), Barry S. Winkler (Biomedical Sciences), one sophomore, one junior and one senior Honors College student.*

The Honors College was 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 Education and Human Services, the School of Engineering and Computer Science, the School of Health Sciences 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 160 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 are not required 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.

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

The Honors College offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

HC 201-208 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
(810) 370-3282
Fax: (810) 370-4275

Interim dean: *John E. Tower*

Office of the Dean: *Kathleen G. Kazarian, coordinator for academic advising; Carole J. Terry, undergraduate academic adviser; Sheryl L. Clark, assistant to the dean and director, Master of Business Administration program; Jeffrey J. Kowalke, computer facilities administrator*

Department chairs: *Thomas W. Lauer, Decision and Information Sciences; Kevin J. Murphy, Economics; Eileen Peacock, Accounting and Finance; Kenneth M. York, Management and Marketing*

Professors: *Eleftherios N. Botsas, Daniel N. Braunstein, Gadis J. Dillon, David P. Doane, Augustin K. Fosu, Karl D. Gregory, Ronald M. Horwitz, Robbin R. Hough, Oded Izraeli, Sid Mittra, Ravi Parameswaran, Howard S. Schwartz, Miron Stano*

Associate professors: *Lizabeth A. Barclay, Mohammed S. Bazaz, Edward J. Farragher, Sherman T. Folland, John W. Henke, Robert T. Kleiman, Thomas W. Lauer, Kieran Mathieson, Donald Mayer, J. Austin Murphy, Kevin J. Murphy, Kevin Nathan, Eileen Peacock, Sandra H. Pelfrey, R. Mohan Pisharodi, Anandi P. Sahu, Barbara A. Theisen, John E. Tower, Ronald L. Tracy, Mary P. Van Sell, T. J. Wharton, Floyd G. Willoughby, Kenneth M. York*

Assistant professors: *Mukesh Bhargava, Joseph H. Callaghan, Addington Coppin, Sheila M. Jacobs, John Kim, Lee R. Mobley, Nivedita Mukherji, Mohinder Parkash*

Special instructor: *David D. Sidaway*

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

Lecturers: *Frank P. Cardimen, Jr., David W. Essig, Robert J. Forbes, Julie Granthen, George Kuljurgis, David Medved, Scott Monroe, James Pawlak, Dennis Polak, Ronald Semaan, David Sowerby, Michael Sugameli*

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:

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Role and Mission

The mission of the Oakland University School of Business Administration is to be recognized as among the top business schools in the State of Michigan. To this end, the school will pursue excellence in teaching, research, and service and will interact productively with five key constituencies: the students and alumni of Oakland University; the faculty and staff of Oakland University; business, not-for-profit and government organizations; the community of academic and professional peers: local, national and international; and the citizens of the State of Michigan and their representatives in the state legislature and on the Oakland University Board of Trustees.

To achieve this mission, the school continuously engages in five processes: to produce, equip, recognize, promote and uphold.

The School of Business Administration seeks to produce: degree holders with a strong foundation in problem definition, analysis and resolution and in the liberal arts and sciences; and research, performance, and service that contribute to knowledge, understanding and the quality of human life.

The School of Business Administration seeks to equip: students with the knowledge and skills to graduate and become effective citizens and professionals; faculty and staff with the resources necessary to carry out their responsibilities; alumni with an appreciation for and access to facilities for continued learning; business, not-for profit and governmental stakeholders with access to knowledge, concepts and technologies; and peers with emerging insights, considered reflections and thoughtful reviews.

The School of Business Administration seeks to recognize: the achievements of individual students with programs that affirm their academic and personal accomplishments; the achievements of individual school faculty and staff as well as their collaborative efforts; the accomplishments of individual alumni and other people in business, not-for-profit, and government organizations and their participation in the life of the university; and the contributions by peers of the school's faculty in the academic community to knowledge, understanding and the quality of human life.

The School of Business Administration seeks to promote: the primacy and continuity of learning, including teaching and research; and collaboration with Oakland University's constituencies in advancing learning and public service.

The School of Business Administration seeks to uphold those organizational traditions and activities that contribute to an ambiance characterized by: collegiality, diversity, freedom of inquiry, freedom of expression, and high standards of ethics and scholarship.

General Information

The School of Business Administration program enables students to combine the 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 and 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 programs include:

1. Bachelor of Science with majors in accounting, economics, finance, general management, human resources management, management information systems and marketing.
2. Bachelor of Arts with a major in economics (offered in conjunction with the College of Arts and Sciences; see the Department of Economics section in the *Arts and Sciences* portion of the catalog for a description of this program).
3. Minors in accounting, economics, finance, general business, human resources management, international management, management information systems, marketing, production and operations management, and quantitative methods.

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 from other institutions, both foreign and domestic, may be requested to provide documentation of the content and scope of the courses they have taken at their previous institutions.

The School of Business Administration offers the Master of Business Administration (MBA) degree for 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. MBA students may elect concentrations in accounting, business economics, finance, human resources management, management information systems, marketing or production/operations management. 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 business administration may start the MBA program while completing their undergraduate degree. To be eligible, students should have a grade point average in the top 25 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). In addition, the accounting program has achieved AACSB accreditation.

Degree Requirements

The curriculum described shall be followed by students entering the School of Business Administration beginning with the fall 1995 semester. Students enrolled prior to fall 1995 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 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. (See *Bachelor of Science with a major in economics* for the specific requirements of that degree program.)

Each student must:

1. Complete at least 128 credits.
2. Complete the writing proficiency requirement (see *Undergraduate degree requirements*).
3. Complete the university general education requirement (see *Undergraduate degree requirements*).
4. Complete the university ethnic diversity requirement (see *Undergraduate degree requirements*).
5. Complete the precore requirements and be admitted to major standing in business administration or economics (see *Admission to major standing*).
6. Complete the core program and the requirements of one of the majors in the School of Business Administration.
7. Complete at least 32 credits at the 300 level or above.
8. Complete at least 32 credits at Oakland University, of which at least 31 credits must be in courses offered by the School of Business Administration, excluding ECN 150, 200, 201, 210 and QMM 250. Of these 31 credits, at least 8 credits must be in the student's major.
9. Take the last 8 credits needed to complete baccalaureate requirements at Oakland University.
10. 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.

Academic Advising and Major Standing

The school offers academic advising to students who plan to pursue one of its degree programs. The advising office is located in 433 Varner Hall (370-3285). Students who have questions about schedule planning, degree requirements, admission to the SBA, major standing, transfer credit, graduation audits or petitions of exception should meet with one of the school's professional advisers. To avoid delays, students are encouraged to seek advising during times other than early registration periods.

Once major standing has been achieved (see *Admission to major standing in business administration* or *Admission to major standing in economics*), students are encouraged to consult with faculty within their major area to discuss schedule planning within the major, career tracking and other issues relevant to making academic decisions that will enhance opportunities for success within a chosen career field.

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; and natural science and technology. For School of Business Administration students, the mathematics, logic and computer science general education category is satisfied by the school's precore mathematics requirements. In addition, for all SBA majors **except economics majors,** the social science general education requirement is satisfied by the school's precore economics requirement. School of Business Administration students are encouraged to increase their background in ethics by taking PHL 103, Introduction to Ethics, to satisfy the university's Western civilization general education requirement.

Ethnic diversity requirement

Students in the School of Business Administration must satisfy the university ethnic diversity requirement (see *Undergraduate degree requirements*). The SBA offers three courses that satisfy the ethnic diversity requirement: ECN 201, MKT 404 and ORG 434.

Precore requirements

As preparation for the various majors of the business administration program, students must earn a grade of 2.0 or better in each of the following courses in writing, speech communication, mathematics, computer use, economics, accounting and statistics.

The required precore courses are:

RHT 150-160	Composition I-II (or complete the writing proficiency requirement in another manner)	0-8
COM 201	Public Speaking	
or COM 202	Group Dynamics and Communication	4
MTH 011-012	Elementary-Intermediate Algebra (if required, based on the math placement test)	0
MTH 121	Linear Programming, Elementary Functions (or MTH 141)	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 that covers the material of both ECN 200 and 201)	6-8
ACC 200	Introductory Financial Accounting	4
ACC 210	Managerial and Cost Accounting I	4
QMM 250	Statistical Methods for Business	6
		36-46

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, FIN 322, MIS 300, MKT 302, ORG 330, POM 343 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 2.60 in all courses taken at Oakland University.
4. A minimum grade of 2.0 in each of the following precore courses or their equivalents: MTH 121, 122; CSE 125; ECN 200 and 201 (or 210); ACC 200, 210; QMM 250 and COM 201 or 202.
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 or 381)	4
ECN 303	Managerial Economics	3
MKT 302	Marketing	4
ORG 330	Introduction to Organizational Behavior	3
POM 343	Operations Management	4
FIN 322	Managerial Finance I	4
MIS 300	Management Information Systems	3
MGT 350	Legal Environment of Business	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, MKT 302, POM 343, FIN 322 and MIS 300. 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 15-24 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: *Eileen Peacock*

The accounting faculty have adopted the statement of mission as defined in the School of Business Administration Mission Statement. Within the context of that mission statement, the accounting curriculum is intended to prepare graduates for careers in public accounting, industry and government.

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 major course. A grade of 2.0 or better must be achieved in each prerequisite accounting course 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	Federal Income Taxation	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 Federal Income Taxation	
ACC 480	Contemporary Accounting Issues	
		6
		32

Because of specific examination 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: *Edward J. Farragher*

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 major 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, 415 or 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 15 additional credits in electives with a grade of 2.0 or better in each major 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 two courses 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: *Kenneth M. York*

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 major 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 470	International Organizational Behavior and Human Resources Management	

ORG 480	Topics in Organizational Management	
MGT 480	Seminar: Current Business Topics	
ECN 338	Economics of Human Resources	
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 major 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 131	Computing I	
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)	
		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 major course.

Required in the core:		Credits
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: *Kevin J. Murphy*

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 business, 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 of Arts and Sciences portion of the catalog). The department encourages students who are considering attending graduate school in economics to take MTH 141 and 154 instead of MTH 121 and 122. Entrance into a master's program in economics will also require a student to take MTH 155; and into a doctoral program, MTH 254.

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:

English composition:		Credits
RHT 150-160	Composition I-II (or complete the writing proficiency requirement in another manner)	0-8
ENG 382	Business and Technical Writing (or ENG 380 or 381)	4
General education requirement:		28

See *Undergraduate degree requirements*. The math, logic and computer science field category will be satisfied by cognate courses. For economics majors, the social science field category

cannot be satisfied with an economics course.

Ethnic diversity requirement:
See *undergraduate degree requirements*.

Cognate courses:

MTH 011-012	Elementary-Intermediate Algebra (if necessary)	0
MTH 121	Linear Programming, Elementary Functions (or MTH 141)	4
MTH 122	Calculus for the Social Sciences (or MTH 154)	4
CSE 125	Introduction to Computer Use (or CSE 130 or 131)	4
ACC 200	Introductory Financial Accounting	4
QMM 250	Statistical Methods for Business	6
FIN 322	Managerial Finance I	4

Quantitative methods course — choose one: 4

ECN 405	Econometrics
QMM 452	Forecasting

Required courses:

ECN 200	Principles of Macroeconomics	
and ECN 201	Principles of Microeconomics	
or ECN 210	Principles of Economics (a 6-credit course that covers the material of both ECN 200 and 201)	6-8
ECN 301	Intermediate Microeconomics	4
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. It is strongly recommended that students become familiar with international institutions within economics. Three courses are well suited to accomplish this: ECN 326, 342 or 373. No more than 4 credits in ECN 490 may be counted as economics electives. 16

General electives: 26-36

128

Transfer students must complete at least 32 credits at Oakland University, of which at least 16 credits must be offered by the School of Business Administration. Of these 16 credits, at least 8 must be in the student's major.

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 2.60 in all courses taken at Oakland University.
4. Completion of the following courses, or their equivalents, with a grade of 2.0 or better in each course: MTH 121, 122; CSE 125 (or 130 or 131); ECN 200 and 201 (or 210) and QMM 250.
5. Submission of an "Application for Major Standing."

Although ECN 301 and 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 ten 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. Students majoring in programs other than business administration may take SBA courses only if they meet the prerequisites (except major standing).

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 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 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 the 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 9 credits toward the minor at Oakland University; at least 6 of these 9 credits must be in courses at the 300 level or above.**

Minor in accounting

Coordinator: *Eileen Peacock*

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

Minor in economics

Coordinator: *Kevin J. Murphy*

The minor in economics consists of a minimum of 18 semester credits in economics courses. A student must take ECN 150 or 210 or both ECN 200 and 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. This minor is open to all students except economics majors.

Minor in finance

Coordinator: *Edward J. Farragher*

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: *Kevin Nathan*

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 150) and 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 human resources management

Coordinator: *Kenneth M. York*

The minor in human resources management consists of a minimum of 18 credits, described as follows: ORG 330, 331 and 434 and 8 additional credits chosen from MGT 433; ORG 430, 431, 432, 470 and 480. This minor is open to all students except SBA human resources management majors.

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 201, 373; MGT 423 and one course chosen from ECN 326, 342, 350; FIN 419; MKT 450 and ORG 470. 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: *Kieran Mathieson*

The minor in management information systems consists of the following 19 credits and any prerequisites for these courses: CSE 125, 130 or 131 or 220; MIS 300, 304 and 316. This minor is open to all students except MIS majors.

Minor in marketing

Coordinator: *John Kim*

The minor in marketing consists of a minimum of 20 credits, described as follows, and any prerequisites for these courses: MKT 302, 353, 404 and any two courses chosen from MKT 405, 406, 420, 430, 450, 470 and 480. This minor is open to all students except marketing 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 130 or131; QMM 250 or STA 226; POM 343 and any two courses chosen from POM 441, 445, 448, 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 131; QMM 250 or STA 226, and any three

courses chosen from QMM 452, 440; POM 448; MIS 444; ECN 405; STA 323, 324. This minor is open to all majors.

Policies and Procedures

High school admissions

For entering freshmen, admission to pre-business is restricted to those presenting a 2.80 cumulative grade point average in high school academic courses and at least four years of college preparatory mathematics courses.

Transfer policy

Transfer students must have a 2.80 cumulative grade point average and mathematics through algebra for admission to pre-business.

Evaluation of transfer courses is a two-part process. General education and composition courses are evaluated by the Academic Records Office. Business courses, including the required computer science courses, are evaluated by the School of Business Administration. Credit for specific SBA courses is authorized for courses of similar content taken at other colleges and universities accredited by a regional accrediting agency. Students transferring from other institutions, especially those from outside the United States, may be required to submit course descriptions and related materials to aid in these transfer evaluations. 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 2.60 or better in at least 12 credits at Oakland University is also required.

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 two- or 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 education 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 in business, not-for-profit or governmental organizations similar to those held by recent Oakland University graduates. 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: The Detroit chapter of the American Marketing Association awards certificates of achievement for scholarship and service to 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.

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

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.

Charles R. Lesser Jr. Scholarship: This $500 annual scholarship was created in honor of Charles R. Lesser and is intended for an accounting major. Applicants must have a G.P.A. of 3.00 or better.

Comerica Bank Diversity Scholarships: These $3,000 tuition scholarships were established to support disadvantaged students. Applicants should have junior standing, a GPA of 2.50 or above, and show financial need and disadvantaged status. Community involvement and leadership capabilities will be considered. Four scholarships will be awarded annually, two at the junior level and two at the senior level. Minorities are encouraged to apply.

Comerica Bank Outstanding Student Leadership Award: The purpose of this award is to recognize good students who commit their time, effort and energies to various on-campus and community programs, projects and activities. A monetary award accompanies this recognition.

Dicron Tafralian 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 Tafralian, 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 senior management information systems major each year based on academic achievement. The scholarship will cover full tuition for the senior year.

Fidelity Bank Scholarship: This scholarship was established to assist financially disadvantaged students pursuing careers in all fields of business administration. A preference will be given to those with an interest in a career in banking. Candidates must be full time students, have achieved junior standing and have a grade point average of 2.80 or above. This is a one year, $2,500 scholarship for tuition and books.

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

Harry Cunningham Scholarship: This $2,500 scholarship is for a student interested in the retailing field with a desire to pursue employment with a major retailing establishment, such as the Kmart Corporation. Candidates must be enrolled full time, have junior standing and have a GPA of 2.60 or above.

Oakland Executive Association Scholarship: This scholarship was established to assist an Oakland County scholar. Candidates must be both scholarly and civic minded, be full time students, have achieved junior standing, have a grade point average of 3.00 or above, be current residents of Oakland County and show university/civic involvement. This is a one year, $2,500 scholarship for tuition and books.

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.

Paul F. Lorenz Business Report Award: The purpose of this annual 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. Each year two $500 awards go to undergraduate students and two $500 awards go to graduate students who have demonstrated superior business report writing skills.

Lorenz Scholars: These awards are to recognize academic excellence in SBA juniors who are moving into their senior year; $500 awards will go to the two students with the highest GPA.

Volkswagen of America Leadership Scholarships: These $2,700 renewable tuition scholarships have as their aim the creation of a diverse student body. Candidates for these scholarships are incoming freshmen who are residents of Detroit and/or attended school there. A preference is given to students who participated in and met or exceeded Detroit Compact program standards. Strong financial need is a major factor in the awarding of these scholarships. Minorities are encouraged to apply.

Course Offerings

Following are descriptions of the courses offered by the School of Business Administration. Required precore and core courses for students majoring in the business 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, ENG 382, FIN 322, MIS 300, MKT 302, ORG 330, POM 343 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). 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 452.

The school offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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, 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 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 310 or 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 310 or 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 Federal Income Taxation (3)
To acquaint students with the concepts of federal taxation. The essential logic underlying the federal tax laws will be explored, with emphasis placed on the tax treatment of individual taxpayers. The course focuses on tax theory and law rather than on the preparation of tax returns.
Prerequisite: ACC 310 or 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 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 Federal Income Taxation (3)
To study the basic federal income tax laws relating to corporations, partnerships, estates and trusts. Topics include the formation, operation and taxation of corporations, S corporations, partnerships and other taxable entities.
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 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. Not open to students who have completed ECN 200 or MTH 141 or above. *This course 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. *This course 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.) *This course satisfies the university ethnic diversity requirement.*
Prerequisite: ECN 200 or 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. *This course satisfies the university general education requirement in social science.* (Generally offered fall semester.)
Prerequisite: High school algebra, sophomore standing and a GPA of 3.00 or better.

ECN 301 Intermediate Microeconomics (4)
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 fall and winter semesters.)
Prerequisite: ECN 201 or 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 fall and winter semesters.)
Prerequisite: ECN 201 or 210, and MTH 122, or permission of instructor.

ECN 303 Managerial Economics (3)
The study of microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. *This course is not open to economics majors.* Generally offered every semester.
Prerequisites: ECN 201 or 210, and MTH 122, or permission of instructor.

ECN 309 State and Local Public Finance (4)
The course provides explanation and analysis of state and local public finance practices and problems. Topics include public goods and externalities, benefit-cost analysis, organization of sub-national governments, the budget process, and state and local revenues and expenditures.
Prerequisite: ECN 150 or 201 or 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 spring session of odd years).
Prerequisite: ECN 150 or 201 or 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 summer session.)
Prerequisite: ECN 150 or 201 or 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 201 or 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 winter semester of odd years.)
Prerequisite: ECN 150 or 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 201 or 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 201 or 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 even years.)
Prerequisite: ECN 201 or 210 or permission of instructor.

ECN 367 Economics of Health Care (4)
Application of 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 winter semester of even years.)
Prerequisite: ECN 201 or 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 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 spring session of even years.)
Prerequisite: ECN 201 or 210 or permission of instructor.

ECN 380 Topics in Economics (4)
Study of a selected topic in economics. Emphasis is placed on the institutional rather than theoretical aspects of the topic. May be repeated for a total of 8 credits as long as the topic covered is different.
Prerequisite: ECN 201 or 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 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 303, or permission of instructor.

ECN 409 Urban Economics and Location Theory (4)
Application of microeconomic theory and empirical analysis to: residential choice and location of economic activities; migration patterns within and across states and metropolitan areas; major urban problems such as quality of life, transportation and optimum city size; and Michigan's economy. (Generally offered winter semester of odd years.)
Prerequisite: QMM 250 and ECN 301 or 303, 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 once per academic year.)
Prerequisite: ECN 301 or 303.

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 fall semester of odd years.)
Prerequisite: ECN 301 or 303 and QMM 250, or permission of instructor.

ECN 421 Monetary Theory and Policy (4)
A systematic treatment of monetary economics. Particular attention is paid to issues such as money demand, money supply, effects of money on the real economy (output and employment) and inflation, and effectiveness of monetary policy. (Generally offered winter of odd years.)
Prerequisites: ECN 302 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 odd years.)
Prerequisite: QMM 250 and ECN 301 or 303, 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 303, 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 303, 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.
Prerequisite: ECN 301 or 303.

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 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 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 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 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 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, 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 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 303 or 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 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 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.
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 303, 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 131, 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 4GLs. Applications in accounting, finance, marketing, human resources and production will be emphasized.
Prerequisite: CSE 130 or 131, 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 131, 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, 304 or 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 150 or 200, 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 spreadsheets 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. *This course satisfies the university ethnic diversity requirement.*
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, service marketing 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.

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. *This course satisfies the university ethnic diversity requirement.*
Prerequisite: ORG 331 and major standing.

ORG 470 International Organizational Behavior and Human Resources Management (4)
This course examines both international organizational behavior and human resource management in order to prepare for work in a global environment. Cross-cultural training, managing global managers, compensation, labor relations and repatriation are among the topics covered. Offered every other year.
Prerequisite: ORG 331 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.
Prerequisite: QMM 250 or STA 226 and junior 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.
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 that lend themselves to analytical and computer techniques as well as problems involving subjective judgment and creativity in translating theory into practice.
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.
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 for Business (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 154, and CSE 125 or 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 303 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
(810) 370-3050
Fax (810) 370-4202

Acting Dean: *Mary L. Otto*

Associate Dean: *F. James Clatworthy*

Office of the Dean: *David C. Moroz, adviser; Christine F. Walsh, adviser; Vicky Hunt, assistant to the dean; Jill Walters, M.A., adviser; Jean E. Williams, coordinator, counseling practicum laboratory*

Ken Morris Center for the Study of Labor and Work: *Michael P. Long, program manager*

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

Institute for Action Research and Professional Development: *Donald M. Miller, 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, a five-year secondary education program leading to teaching certification for selected majors, and a Bachelor of Science in human resource development with specialization in either human services or training and development. Minors in human resource development and in labor and employment studies are also available. Students considering a major in elementary education should consult the *Admissions* section of this catalog for specific preparation requirements.

The School of Education and Human Services also 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 reading and language arts, and the Master of Education in three areas: early childhood; curriculum, instruction and leadership; and special education. For information on these programs, see the *Oakland University Graduate Catalog*.

Additional Services

Advising Center

The School of Education and Human Services (SEHS) Advising Center (472 O'Dowd Hall, 370-4182) 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.

Lowry Early Childhood Center

The Lowry Early Childhood Center (370-4100) 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 (135 O'Dowd Hall, 370-3124) 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 (Varner House, 370-4233) 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.

Field Placements and Internships

The Office of School and Field Services (544 O'Dowd Hall, 370-3060) is responsible for the placement of pre-service interns and special education practicum students.

Educational Resources Laboratory

The Educational Resources Laboratory (216 O'Dowd Hall, 370-2485) 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.

DEPARTMENT OF CURRICULUM, INSTRUCTION AND LEADERSHIP

507 O'DOWD HALL (810) 370-3070

Chairperson: *Joyce A. Eckart*

Professor emeritus: *Patrick J. Johnson*

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

Associate professors: *Joyce A. Eckart, Eric J. Follo, William Keane, Dyanne M. Tracy*

Assistant professors: *Sarah L. Gibson, William Hoerr, Dawn M. Pickard, Robert A. Wiggins*

Adjunct professor: *Asa Hillard*

General Information

The Department of Curriculum, Instruction and Leadership offers programs designed to prepare students for careers in elementary and secondary school teaching. Both programs are approved by the National Council for Accreditation of Teacher Education (NCATE).

The undergraduate elementary education program enables students to earn concurrently a Bachelor of Science degree from Oakland University and recommendation for a Michigan elementary provisional certificate (see *Michigan Teacher Certification*). Students wishing to obtain an elementary provisional certificate and who hold a bachelor's degree pursue the program as second undergraduates.

The department also offers a fifth-year program that prepares students majoring in selected academic fields in the College of Arts and Sciences for recommendation for a Michigan secondary provisional certificate.

Requirements for the Bachelor of Science degree with a major in 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. Achieve 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. Earn the minimum score established by the department undergraduate admissions committee for the Michigan Teacher Test for Certification (MTTC) Program in Basic Skills. Information on test registration is available from the SEHS Advising Center.

To obtain candidacy in elementary education, students present the original MTTC Basic Skills 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 SEHS Advising Center provide academic advice for elementary education candidates. Because of changing state certification requirements, students should make an appointment with an adviser at least once a year.

Admission to the major

Students who hold elementary education candidacy must complete EED 310 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 310 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 310
6. Submission of a completed application by the published deadline.

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 SEHS 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 early registration time so that the staff may adequately serve their needs.

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 SEHS 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 the university ethnic diversity requirement.
4. Complete a teaching major or two teaching minors (described below).
5. Complete pre-professional and professional course work.
6. 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 2.7 GPA in non-education courses.
7. Maintain a cumulative GPA of at least 2.70.
8. 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, 224 or 241
Language: ALS 176 is preferred unless modern language is a major or minor
Western Civilization: HST 114 or 115
Social Science: One from SOC 100; PSY 100, 130; PS 100 or ECN 150
Natural Science/Technology: Choose one from BIO 104, 110, 111, 113, 300 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.

Teaching majors/minors

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

Language arts teaching 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/COM 207; COM 201, 202; THA 100, 110, 210, 213, 220, 300, 301, 302, 310.

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

Mathematics teaching minor (20 credits) — MTE 210, 211, 410; MTH 141; STA 225. Students who test out of MTH 141 must elect one course from: MTH 118, 121, 122, 154.

Mathematics teaching major (30 credits) — Meet requirements of the mathematics minor plus at least 10 credits from: APM 263; CSE 130, 235; MTH 118, 121, 122, 154, 155, 254, 256, 372; STA 226, 322, 323, 324.

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

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

Science teaching minor (24 credits) — SCS 105; 4 credits from BIO 104, 110, 111, 113/116, or 300; 4 credits from CHM 101, 104 or 300; 4 credits from ENV 308, 322; 4 credits from PHY 104, 105, 106, 107; and 4 credits from PHY 115, 127, or 101.

Science teaching 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, 234, 235, 300, 453/457, 454/457; ENV 461, 474; PHY 102, 107, 158, 306; SCS 490.

Social studies teaching minor— State mandated change: Beginning fall 1995, certification will be for the **social studies** teaching minor. Course requirements for this certification include two courses in each of the following areas: economics, geography, history and political science. Appropriate courses will be identified to those seeking this minor by personnel in the SEHS Advising Center (472 O'Dowd Hall, 370-4182). Students seeking social sciences certification under earlier requirements should consult an adviser.

Social studies teaching major (36 credits) — Meet requirements for the social studies teaching minor plus additional approved credits in anthropology, economics, geography, history, international studies, political science or sociology. Note: Social science certification will not be granted after August 1997.

An additional teaching major or minor 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 teaching 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 210, 213 or 300.

Fine arts specialized teaching 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, 300, 301, 302) 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 teaching 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 teaching 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 two professional education courses. Any waiver to this policy must be approved by the Advising Center before the term for which the waiver is requested. The professional education courses are: EED 302, 305, 354, 420, 470; FE 210, 215; IST 396; RDG 331, 333, 414; SE 355. Students must follow the required sequence of courses provided at the time of admission. Prerequisites are required for some professional education courses. See course offerings for prerequisites and corequisites.

Retention in the program also is based on the expectation that students demonstrate the characteristics of and conduct themselves as members of the teaching profession. Students may be removed from the program upon a showing of professional incompetence. A deficiency in one or more of the following areas is evidence of professional incompetence: 1. knowledge of the subject taught; 2. the ability to impart that knowledge; 3. the manner and efficacy of discipline in the elementary classroom; 4. rapport with students in the elementary classroom, as well as parents, faculty, administrators and staff; and 5. physical and mental ability to perform

the essential functions of a teacher. Professional incompetence may also be grounds for a failure to recommend students for certification.

Field placements: Participation in field placements is required each fall and winter semester during which students enroll 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. Admission criteria for the internship are: a) satisfactory grade point average and minimum required grades; b) completion of all professional education course work; and c) completion of all required course work for the teaching major and/or minors. EED 455 may not be repeated.

Students must petition the department to enroll in more than 12 credits during the internship semester. Students who do not successfully complete the subject 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. Students who do not earn the minimum grade for certification can earn a B.S. without certification.

Michigan teacher certification

To be recommended for a provisional elementary certificate, elementary education majors must successfully complete requirements for the B.S., earn a minimum grade of 2.8 in EED 455, and successfully pass subject area tests required by the state. 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.

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.

The department offers courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

ELEMENTARY EDUCATION

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: Admission to major, EED 354, 420; FE 210, 215; MTE 210; SCS 105; SE 355.
Either prerequisite or corequisite: IST 396; RDG 331, 396, 414.

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: Admission to major, EED 354, 420; FE 210, 215; MTE 210; SCS 105; SE 355.
Either prerequisite or corequisite: IST 396; RDG 331, 396, 414.

EED 310 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 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 based on outcomes. 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. May not be repeated.
Prerequisite: See program requirements — internship.

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. *This course satisfies the university ethnic diversity requirement.*
Prerequisite: Admission to major, EED 354, 420; FE 210, 215; MTE 210; SCS 105; SE 355.
Either prerequisite or corequisite: IST 396; RDG 331, 396, 414.

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 (STEP)

Program Coordinator: *Dr. William Hoerr*

Program description

The School of Education and Human Services and the College of Arts and Sciences offer a fifth-year secondary teacher education program (STEP) leading to recommendation for Michigan secondary provisional teacher certification. This certification is valid for teaching content area majors and minors in grades 7-12, except music, which is valid for grades K-12. The major areas in which Oakland program participants may become certified to teach are: biology, physics, chemistry, Spanish, German, French, Russian, mathematics, history and music. Students interested in music education need to contact the Department of Music, Theatre and Dance to learn about content-specific course and sequence requirements.

After completing requirements for graduation in their major and minor teaching areas, students engage in a year-long internship in the public schools which includes both courses and field experiences, and fulfills requirements for certification.

Prospective applicants considering education beyond teacher certification should note that 12 credits of STEP professional coursework can be applied directly to a program leading to a master's degree in secondary education. The conditions under which this is applicable, and additional information on the secondary education master's program, can be obtained by contacting the program coordinator.

Program requirements

Both undergraduates, and students who have completed undergraduate degrees from Oakland or other universities (post-baccalaureates) are eligible to apply. Both groups must fulfill all Oakland requirements for a baccalaureate degree in an approved major (listed above) prior to beginning their internship year. In addition, they must complete a teaching minor in one of the following areas: biology, chemistry, computer science, English, history, mathematics, modern languages, physics, political science, sociology or speech. For details on specific major and minor course requirements, consult the applicable Arts and Sciences departmental listings in this catalog. For details on the teaching minor in computer science, consult the School of Engineering and Computer Science section.

The program also requires 38 credits in professional education coursework. Program coursework includes three courses which are taken prior to the start of the internship, and which may be taken while students are completing their other degree requirements. These are SED 300 (Introduction to Secondary Education, 4 cr.), FE 345 (Educational Psychology for Secondary Teachers, 4 cr.) and RDG 538 (Teaching Reading in the Content Areas, 4 cr.; RDG 338 [4 cr.] also fulfills this requirement). Internship year courses include SED 427 (Methods of Teaching Secondary Students, 2 cr.), SED 428 (Teaching of the Major Field, 4 cr.), SE 501 (The Exceptional Student, 4 cr.), FE 602 (Philosophy in Education, 4 cr.) and SED 455 (the 12 credit field component of the internship year).

Undergraduates who will be receiving their degrees from Oakland may choose to graduate either before or after their internship year. Undergraduates who receive financial aid, particularly, will want to weigh the costs and benefits of graduation options. Post-baccalaureates from other institutions may be required to complete additional coursework to align with Oakland degrees and to satisfy residency requirements. Post-baccalaureates should consult with advisers in their content areas to learn more about this.

Program sequence

Undergraduates will typically take the education courses in the following sequence:

Junior year, fall or winter semester	SED 300
Senior year, winter semester	FE 345 and RDG 538
Senior year, spring semester	SED 427

Internship (fall, winter and spring semesters)	SED 455 (full year), SED 428 (fall,) SE 501 (fall) and FE 602 (spring)

Post-baccalaureate applicants may have the option of completing pre-internship coursework on an accelerated schedule. These applicants should contact the program coordinator to learn about options applicable to their individual circumstances.

Application process

Undergraduate students may begin the application process as early as the second semester of their sophomore year. To be formally admitted, however, students must have completed or be enrolled in SED 300. Post-baccalaureate students may apply at any time with the same qualification. Post-baccalaureate applicants please note: Admission to the STEP and admission to the university as a post-baccalaureate student involve separate processes. These students should contact the university admissions office for information about the post-baccalaureate application process.

Students are generally required to have a 2.8 overall GPA and a 3.0 GPA in their major and minor areas for admission into the program. Students with GPAs below these levels may become eligible but should plan to meet with the secondary education coordinator to discuss their circumstances before they begin the application process.

A number of factors are considered in the applicant selection process. These include GPA, written responses to a set of application questions, letters of recommendation and scores on Michigan teacher competency tests. Additional information or an interview may be requested to provide a more complete applicant profile. To progress into the internship, students admitted to the STEP must maintain a 3.0 minimum GPA in program courses, receive favorable recommendations from course instructors and early field experience cooperating teachers, and interview successfully for a school placement. If, after being admitted to the STEP, a student's GPA drops below an acceptable level or they receive a grade lower than a 2.0 in a course applied to their major or minor, their program status will be placed on hold until such deficiencies are remedied.

Applications for winter semester admissions must be received by October 15, and for fall semester admissions by March 15. Application packets are available in the Arts and Sciences Advising Office (219 Varner, 370-4567) and the School of Education and Human Services Advising Office (472 O'Dowd, 370-4182).

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

Descriptions for courses designated FE and SE are listed in this catalog under the Department of Human Development and Child Studies. RDG 538 is described in the *Graduate Catalog*.

SED 300 Introduction to Secondary Education (4)
Introduces secondary teaching as a profession and career, exploring topics and issues in secondary education. Requires 50 clock hours of observation and experience in local high school classrooms.
Prerequisite: Admission to presecondary 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 (4-12)
Provides an academic year internship in an assigned school district under the guidance of a clinical instructor and university instructor. Enrollment for a total of 12 credits is required for completion of the internship.
Prerequisite: Admission to the internship.

DEPARTMENT OF HUMAN DEVELOPMENT AND CHILD STUDIES

529 O'DOWD HALL (810) 370-3077

Chairperson: *Ronald M. Swartz*

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, Andrew S. Gunsberg, Carol A. Swift*

Assistant professors: *Sandra Alber, Richard C. Pipan*

Special instructor: *Carrie Owens-Petty*

Within the School of Education and Human Services, the faculty of the Department of Human Development and Child Studies offer courses in 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; these graduate programs can provide teaching certificate endorsements and/or professional education certification requirements.

Course Offerings

The department offers selected courses form this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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

137 O'DOWD HALL (810) 370-4170

Chairperson: *Susan M. Awbrey*

Professors emeriti: *David P. Meyer, William F. Moorhouse*

Associate professors: *John W. Atlas, Susan M. Awbrey, F. James Clatworthy, William C. Fish, Michael P. Long, Billy Joe Minor, Robert G. Payne, 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 (370-3066). 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 degree with a major in Human Resource Development

The curriculum described shall be followed by students entering the School of Education and Human Services beginning with the fall 1995 semester. Students enrolled prior to fall 1995 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-HRD in the School of Education and Human Services (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 Education and Human Services after admission 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 the school's academic adviser the semester before the semester in which they plan to graduate. The responsibility for meeting graduation requirements rests with the student.

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. Satisfy the university ethnic diversity requirement.
9. Complete the human resource development core requirements with a minimum grade of 2.50 in each course and apply for admission to specialization status. (See *Requirements for admission to specialization)*.
10. Complete the major specialization requirements (human services or training and development).
11. Complete the professional development requirements.
12. Complete the professional electives requirements.
13. Complete the internship and field placement requirements.
14. Complete courses required in categories 10-13 above with a minimum grade point of 2.0 in each course and a cumulative GPA of 2.50.

Requirements for the human resource development (HRD) core

The HRD program requires the completion of a common core of courses introducing students to the fundamental areas of human resource development. Students must earn a grade of 2.5 or better in each of the following core courses.

HI 261	Fundamentals of Human Interaction	4
HRD 367	Cultural Diversity in the Workplace (satisfies the university ethnic diversity requirement)	4
HRD 362	Assessment and Statistical Foundations in HRD	4
HRD 364/LE364	Career Development	4
	Total	16

Note: HI 261 may be waived for individuals with equivalent course work or experience.

Requirements for admission to specialization (human services or training and development)

Students may apply for admission to one of the HRD specializations after satisfying the following requirements:

1. Completion of 32 credits at an accredited college or university with a grade point average (GPA) of 2.5 or better. Courses that carry no numerical or letter grade (such as S or U) are excluded from the calculation of the GPA.
2. Completion of the HRD core courses (16 hours) with a grade of 2.5 or better in each course.
3. Satisfaction of the university writing requirement.
4. Completion of the specialization application and plan of study.

To continue in a specialization, students must maintain a minimum overall GPA of 2.50.

Specialization in human services

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.

Specialization course requirements

To satisfy the requirements for the human services specialization, students must complete the HRD core, be admitted to the specialization, and complete the following specialization area requirements. Specialization courses must be completed with a minimum grade of 2.0 in each course and a cumulative GPA of 2.50 or better.

A. Specialization Courses (complete all 20 credits)

HI 361	The Helping Interview: Techniques and Laboratory	4
HI 363	Group Dynamics	4
HRD 302	Ethics and Personal Crisis	4
HRD 366	The Human Services	4
HRD 409	Information Management Systems	4
	Total	20

B. Professional Development Courses (18-20 credits)

This requirement is satisfied by completing one course in each of the following five sections. This requirement may also be satisfied by completing a minor in labor and employment studies or a concentration in gerontology or social services.

1. Human Development

HRD 301	Human Nature
PSY 225	Introduction to Life Span Development Psychology

2. Social Change

HRD 401	Change Process and Organizational Analysis
LE 320	Introduction to Labor and Employment
LE 321	Introduction to Labor and Employment in the Public Sector
SOC 205	Current Social Problems
SOC 314	The Social Context of Social Work
SOC 315	Social Welfare Policies
SOC 336	Sociology of Gender
SOC 346	Communities

3. Writing

ENG 382	Business Writing
RHT 335	Writing for Human Services

4. Leadership and Administrative Foundations

HRD 411	Leadership and Administrative Practices
LE 322	Study of Labor and Work Organizations

5. Human Service Populations

GRY 400	Multidisciplinary Seminar on Aging
HRD 335	Substance Abuse
HRD 431	Death and Dying

HRD 451	Strategies for Helping Older Adults
LE 326	Collective Bargaining and Dispute Resolution
PSY 327	Socialization of the Family
PSY 371	Work with the Elderly
PSY 375	Psychology of Women
SOC 240	Sociology of Crime and Punishment
SOC 331	Racial and Ethnic Relations
SOC 335	The Family
SOC 465	Sociological Perspectives on Aging
WS 300	Women in Transition

C. **Professional Electives** (4 credits)

D. **Field Work and Internship** (14 credits)
Complete a minimum of 14 credits in field placements (including HRD 369 and 490) 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. The internship must be taken for no less than 8 credits and must be completed during the senior year.

Specialization in training and development

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.

Specialization course requirements

To satisfy the requirements for the training and development specialization, students must complete the HRD core, be admitted to the specialization and complete the following specialization area requirements. Specialization courses must be completed with a minimum grade of 2.0 in each course and a cumulative GPA of 2.50 or better.

A. **Specialization Courses** (complete all 20 credits)

HI 361	The Helping Interview Techniques & Laboratory	
or	or	
HI 363	Group Dynamics	4
HRD 303	Ethics in Training and Development	4
HRD 306	Introduction to Training and Development	4
HRD 310	Training Design	4
HRD 421	Instructional Methods and Presentation Techniques	4
	Total	20

B. **Professional Development Courses** (22-24 credits)
This requirement is satisfied by completing one course in each of the following 6 sections. This requirement can also be satisfied by completing a minor in Labor and Employment Studies, General Business or Human Resource Management.

1. **Writing**

ENG 382	Business Writing
RHT 335	Writing for Human Services Professionals

2. **Organizational Theory**

HRD 401	Change Process and Organizational Analysis
HRD 411	Leadership and Administrative Practices
HRD 440	Strategic Planning
LE 322	Study of Labor and Work Organizations
ORG 330	Introduction to Organizational Behavior

3. **Planning and Evaluation**

HRD 402	Program Planning and Evaluation
PSY 250	Introduction to Research Design
STA 225	Introduction to Statistical Concepts and Reasoning

4. **Labor Relations and Employee Involvement**

HST 302	American Labor History
LE 324	Work and the Law
LE 326	Collective Bargaining and Dispute Resolution
LE 328	Employment Regulations and Benefits
SOC 350	The Transformation of the Workplace
SOC 354	Quality of Work Life

5. **Computer Literacy**

CSE 125	Introduction to Computer Use
CSE 130	Introduction to Computer Programming
HRD 470	Using Computers in Training and Development

6. **Development Process**

HI 464	Consultation
HRD 368	Work and Training Development

C. **Professional Electives** (8 credits)

D. **Internship** (8-12 credits)
Complete a minimum of 8 credits in field placement. The internship must be taken for no less than 8 credits and must be completed during the senior year.

Minor in human resource development

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 and training.

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 the coordinator for the HRD minor. Courses counted towards the minor must have a cumulative grade point average of 2.50 or better with no grade lower than 2.0.

Minor in labor and employment studies

Labor and employment studies is an interdisciplinary minor which provides an academic background for understanding the empirical and theoretical bases of the employee/employer relationship and labor organizations. This program may be particularly useful to individuals interested in the operational aspects of employment including the law, collective bargaining, personnel practices, and the dynamics of staff, leadership and participative roles.

This minor is open to any student who has been admitted to the university. Core courses are scheduled to maximize accessibility to both full-time undergraduates and full-time, working adult students. Students who seek to apply credits toward a degree must contact an adviser to design a degree plan and to select appropriate courses.

This minor requires 23-24 credits distributed among the following four areas of preparation with a minimum grade point average of 2.0 in each course.

1. **Core**, 16 credits

   a. Must take one of the following:

LE 320	Introduction to Labor and Employment (4)
LE 321	Introduction to Labor and Employment in the Public Sector (4)

   b. Select at least 3 of the following:

LE 322	Study of Labor and Work Organizations (4)
LE 324	Work and the Law (4)
LE 326	Collective Bargaining and Dispute Resolution (4)
LE 328	Employment Regulations and Benefits (4)
LE364/HRD 364	Career Development (4)

In addition, students must make selections of one course each in the following two areas to satisfy the remaining requirements of the minor:

2. **Organizational Theory and Practice and Work Life Processes**

COM 202	Group Dynamics and Communications (4)
COM 304	Communications in Organizations (4)
HI 363	Dynamics of Group Relationships (4)
HI 464	Consultation (4)
HRD 401	Change Process and Organizational Analysis (4)
IHS 311	Industrial Safety Technology (3)
ORG 330	Introduction to Organizational Behavior (3)
SOC 350	The Transformation of the Workplace (4)
SOC 354	Quality of Work Life (4)
SOC 359	Human Factors in Quality Control (4)
SOC 381	Theories of Modern Organizations (4)

3. **Community and Society**

HRD 335	Substance Abuse (4)
HRD 367	Cultural Diversity in the Workplace (4)
HST 302	American Labor History (3)
PS 110	Contemporary Political Issues (4)
PSY 375	Psychology of Women (4)
SOC 331	Racial and Ethnic Relations (4)
SOC 357	Industrial Sociology (4)
SOC 445	Contemporary Work Roles, Careers and Labor Markets (4)

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 minor 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.

Departmental honors

HRD departmental honors are available to students who meet the following standards: a 3.30 or higher cumulative average for all courses taken at Oakland University; a 3.60 or higher cumulative average in HRD Department courses (i.e. HI, HRD, LE, excluding HRD 490); a minimum grade of 3.8 in HRD 490 Internship.

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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 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 365 The Helping Interview: Techniques and Laboratory (4)
Designed to improve interpersonal communications skills, this course deals with basic principles of interviewing. It focuses on discussion of such interviewing skills as active listening, questioning, confronting and identifying both self-defeating behaviors and positive assets. Students practice interview skills in a supervised laboratory setting, and are videotaped and critiqued.
Prerequisite: HI 261 or equivalent.

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 361 or 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. Not for major credit.

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 160 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 160 or equivalent.

HRD 306 Introduction to Training and Design (4)
Introduction to strategic assumptions affecting training and design priorities. Investigates roles and competencies for trainers in human services and business and industry work settings. Promotes an understanding of the training and development field and the positioning of self as a potential trainer.

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.
Prerequisite: RHT 160 and HRD 306.

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 and Statistical Foundations in HRD (4)
Assessment is a process for collecting information to form judgments and make decisions. The aim of the course is to develop basic assessment/statistical literacy. This course will provide an opportunity for students to acquire basic knowledge, skills and attitudes needed to control assessment/statistical processes and make high quality decisions.

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 367 Cultural Diversity in the Workplace (4)
Identifies relevant culture-specific issues related to race, gender, ethnicity, socioeconomic status and religion. Examines historical context of culture-specific issues (knowledge). Facilitates awareness of values and their significance in helping relationships (self awareness). Presents an ecological framework for developing effective practices (skills). *This course satisfies the university ethnic diversity requirement.*
Prerequisite: HI 261.

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 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 must submit application to the academic adviser by designated dates on field work application approximately three months prior to the semester in which the field work will be served. 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 or HRD.

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 409 Information Management Systems (4)
Acquaints the student with the information technology needs of the human service agency. Students learn the importance of creating information systems within the organization and how to select the hardware and software appropriate for running a small to midsized human service agency.

HRD 411 Leadership and Administrative Practices (4)
Focuses on the management of small to midsized human service agencies. Persons entering the field of human services are often called upon to act as directors of agencies and projects. This course helps prepare students for this role by providing an introduction to the skills necessary for administering an agency in the non-profit sector.

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 that 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 423 Instructional Methods (4)
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 instructional media.
Prerequisite: HRD 310.

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 or HRD 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 323 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 470 Using Computers in Training and Development (4)
Acquaints students with the use of instructional design to create individualized training that is delivered via computer. Provides beginning skills in the use of a computer authoring system to create a training module and in the selection of multimedia software and hardware.

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 the academic adviser by designated dates on internship application approximately three months prior to the semester in which the internship will be served. Exact deadlines are included on the application. 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 and Employment (4)
A study of the principles of labor relations primarily in the private sector. Conducted through the use of historical data, practical discussions and legal determinations as well as the review of statutory and administrative policy and procedure. Traces labor relations through its origins and basic principles to current volatile issues and developing trends. Includes discussions of the rights and responsibilities of all parties concerning unfair labor practices, representation issues and elections, appropriate bargaining unit determinations, concerted activities, good faith bargaining, fair representation, and other labor relations issues.

LE 321 Introduction to Labor and Employment in the Public Sector (4)
A study of the principles of labor relations primarily in the public sector. Conducted through the use of historical data, practical discussions and legal determinations as well as the review of statutory and administrative policy and procedure. Traces public employee labor relations through its public and private sector origins and basic principles to current volatile issues and developing trends. Includes discussions of the rights and responsibilities of all parties concerning unfair labor practices, representation issues and elections, appropriate bargaining unit determinations, concerted activities, good faith bargaining, fair representation, and other labor relations issues.

LE 322 Study of Labor and Work Organizations (4)
A study of employment systems and employee organizations. Traces the evolution of employment from the feudal system through the traditional systems of employment in America including both the unionized and non-unionized sectors. Expands to cover such areas as the employment system's impact on employer and employee motivation, formal and informal use and development of leadership skills, natural and contrived communication systems and processes, union and other employment organization structure and governance, the logic of concerted activity, employee strategic planning and policy in relation to that of the employer, the principles of the structure, formation and operation of employee organizations, and trends and forecasts in employment systems and employee organizations of the future.

LE 324 Work and the Law (4)
Presents a guide to basic laws, policies and procedures under the National Labor Relations Act as well as common law rights and responsibilities directly related to employment. Uses the Socratic method to review the legal aspects of the entire collective bargaining and employment dispute resolution spectrum. Includes a study of the principles used in determining the proper interpretation and application of collective bargaining agreements in matters of interpretation as well as employee discipline. Also covered are the doctrine at-will employment and its exceptions, the common law regarding the creation and the termination of the employment relationship, privacy in the workplace, employee testing, the principles of defamation as they relate to employment, non-competition agreements, wages, hours and working conditions, and employment rights and responsibilities in general.

LE 326 Collective Bargaining and Dispute Resolution (4)
A study of the principles of both private and public sector collective bargaining and dispute resolution. Conducted through the use of textbook materials, practical discussions and exercises. Preparation for and execution of the collective bargaining process is covered in all aspects, beginning with the compilation of information, and continuing through the formulation of positions, strategic planning, ground rules, negotiation techniques, tentative agreement, and ratification process. Special attention is paid to effective means of negotiating. Includes an extensive collective bargaining simulation and active participation in a formal arbitration presentation.

LE 328 Employment Regulations and Benefits (4)
Presents a guide to laws, regulations, policies and procedures required by federal and state statute. Also teaches the requirements of keeping employment records and writing employment handbooks. It begins with a study of defining the employment relationship and continues with a thorough study of the regulation of discrimination in employment and the regulation of the employment environment as well as other forms of government regulation.

DEPARTMENT OF READING AND LANGUAGE ARTS

453 O'DOWD HALL (810) 370-3065

Chairperson: *Ronald L. Cramer*

Professors emeriti: *Harold C. Cafone, George E. Coon, Harry T. Hahn*

Professors: *Jane M. Bingham, Ronald L. Cramer, W. Dorsey Hammond, Robert M. Schwartz*

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

Visiting associate professor: *Pasqualina J. Skandalaris*

Visiting assistant professor: *Joyce Wiencek*

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, certificate programs in microcomputer applications, post-master's certificate programs, K-12 reading endorsements and three master's degree programs combined with endorsements in learning disabilities, early childhood and Michigan administrator certification for elementary, middle and secondary principals, and a doctor of philosophy degree in reading.

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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. *This course satisfies the university ethnic diversity requirement.*
Prerequisite: Admission to major and FE 215.
Corequisite: RDG 333.

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 160 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.
Corequistite: RDG 331.

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. *This course satisfies the university ethnic diversity requirement.*

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.

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).

INSTRUCTIONAL SYSTEMS TECHNOLOGY

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

(810) 370-2217
Fax: (810) 370-4261

Dean: *Michael P. Polis*

Office of the Dean: *Bhushan L. Bhatt, associate dean; John K. Fischer, assistant to the dean; Patrick Bennett, academic adviser/program coordinator; Prasanna Datta, engineering cooperative education coordinator*

Advisory Board

The Advisory Board 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:

Ronald L. McIntyre, Chairperson, Advisory Board, Director, Environmental Initiatives, Detroit Edison
Robert T. Lentz, Ph.D., Vice Chairperson, Advisory Board, Vice-President, M1A2 International, General Dynamics Land Systems Division
William G. Agnew, Ph.D., Retired Director, General Motors Research Labs
Hadi A. Akeel, Ph.D., Vice President and Chief Engineer, FANUC Robotics Corporation
Gerald Cilibraise, Executive Engineer, SCP/Electrical, Chrysler Corporation
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Thomas P. Mathues, Director of Engineering of Brake Systems, ITT Automotive Brake Systems North America
Stephan Sharf, President, SICA
James Sutton, Director of Business Development, SSOE, Inc.
Arnold J. Vander Bok, Director, Electronic Systems, Diesel Corporation
Thomas H. Vos, Vice President, Technology, TRW Vehicle Safety Systems, Inc.

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 minors in computer science and in computing for nonmajors.

Professional societies

The school has a number of professional societies such as the Association of Computing Machinery (ACM), Association of Minority Engineers and Computer Scientists (AMECS), Association of Unmanned Vehicle Systems (AUVS), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), Society of Automotive Engineers (SAE), Society of Manufacturing Engineers (SME), Society of Women Engineers (SWE), National Society of Professional Engineers (NSPE), Theta Tau fraternity and honor societies Eta Kappa Nu and Tau Beta Pi. Students are encouraged to become active members of one or more of these organizations. 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. The school also offers a Master of Science degree in engineering management in cooperation with the School of Business Administration.

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

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 department. Students may transfer applicable community college credits at any time during their course of study. However, at least one-half of the credits required for completion of a specific baccalaureate degree program must be from regionally accredited institutions.

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. Students planning to transfer from Oakland Community College (OCC) under the "2+2" program must meet specific requirements that are available in detail from the Admissions Office at OCC. 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 C++, is 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, 155; PHY 151 and 152. A strong performance in all of the courses taken at Oakland University, especially in the above listed four courses in calculus and physics, is 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 students' awareness of the engineering profession. 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." This is normally the week before early registration during the fall and winter semesters. 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. Similarly, computer science students should ensure that they meet various breadth and depth requirements in the advanced portion of their computer science curriculum. For each program, credits associated with relevant design experiences and those associated with various computer science categories are listed in the school's "Undergraduate Student Handbook" available from the advising office (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:

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:

   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;

   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;

   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. Fulfill the university ethnic diversity requirement.

7. Be admitted to major standing in the major of the student's choice.

8. Complete the requirements specified for the elected major.

9. Earn a cumulative grade point average of at least 2.00 in courses taken at Oakland University.

10. Complete an Application for Degree 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.

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

Asian arts and civilization: AH 104 and IS 270 (arts and international studies)

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

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

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

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

Culture and society through film: CIN 150 and AN 307 (arts and social science)

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

Ethnic literature and history of African-Americans: ENG 112 and HST 292 (literature and Western civilization)

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

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

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

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

Theatre and dramatic expression: THA 301 or 302 and ENG 306 (arts and literature)

Oakland University also requires that students take at least one course that satisfies the ethnic diversity requirement (see *Academic Policies and Procedures* section of this catalog). A listing of such courses is also available in the advising office (159A Dodge Hall). Students may select a course that fulfills both a general education category requirement and the ethnic diversity requirement.

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 164, CSE 131, rhetoric or general education course. Second semester: CSE 171, MTH 155, PHY 151, general education course.

Computer science majors — First semester: CSE 131, MTH 154, rhetoric or general education course. Second semester: CSE 171, 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 make up the deficiencies by enrolling during the spring and summer sessions following the freshman year.

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 major standing.

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 department. 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 advising office (159A Dodge Hall).

To gain major standing 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, 256; APM 263. Science: PHY 151, 152. Major: EGR 101 (for computer engineering majors only), CSE 131, 171, 231.

Electrical engineering and systems engineering

Mathematics: MTH 154-155, 256; APM 257. Science: CHM 144 or 164, PHY 151, 152. Major: EGR 101; CSE 131, 171; EE 222; ME 221.

Mechanical engineering

Mathematics: MTH 154-155 and either MTH 254 or both MTH 256 and APM 257. Science: CHM 144 or 164; PHY 151, 152. Major: EGR 101; CSE 131, 171; ME 221; EE 222.

Engineering physics

Mathematics: MTH 154-155, 254. Science: CHM 144-145 or 164-165; PHY 151, 152, 158. Major: CSE 131, 171; EE 222.

Engineering chemistry

Mathematics: MTH 154-155, 254, APM 257. Science: CHM 144-145 or 164-165; 147-148. Major: EGR 101; CSE 131, 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 (366 Vandenberg Hall, 370-3252).

To be admitted, students 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 department. 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 academic adviser, 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 111, 113 and higher; CHM 145, 165 (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 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, 012, 100, 121-122, 141, 118; PHY 101, 102; CHM 101, 104 and 300.

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.

Minors and Concentrations

Students who wish to add a 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 *Other Academic Options* in the Arts and Sciences portion of the catalog).

Accounting

Coordinator: *Eileen Peacock*

For computer science majors, a minimum of 20 credits. To obtain a minor in accounting, students must complete the following courses with a grade of at least 2.0 in each course: ACC 200, 210 and 12 additional credits in accounting (ACC) courses for which students have 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, students must complete the following courses with a grade of 2.0 or better in each: MTH 254, 256, 302, either 351 or 475; STA 226 (or another statistics course approved by the coordinator); and one course chosen from among APM 257, 263, or any 3- or 4-credit 300-400 level courses labeled MTH, APM, MOR or STA, except APM 407 and MTH 497. Students should consult an adviser in the Department of Mathematical Sciences when planning their programs.

Applied statistics

Coordinator: *Robert H. Kushler*

For engineering and computer science majors, a minimum of 16 credits. To obtain a concentration in applied statistics, students 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, 323 and 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, students must take a minimum of 20 credits in biology, including BIO 111, 113 and 116. 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, students must take CHM 144-145 (or 164-165), 147-148, 225, 234-235 and 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 164-165), 147-148, 225, 342, 470 and 471. A minimum of 8 credits must be taken at Oakland University.

Economics

Coordinator: *Kevin J. Murphy*

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), students must complete the following courses with a grade of at least 2.0 in each course: ECN 150 or 210 or 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, students must complete the following courses: a) CHM 234, ENV 308 and ME 407; b) 8 credits of electives chosen from ENV 372, 373 and BIO 301; and c) 4 credits of ME 490 or 494 on an approved environmental engineering topic.

Finance

Coordinator: *Edward J. Farragher*

For computer science majors, a minimum of 22 credits. To obtain a minor in finance, students 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: *Kevin Nathan*

For engineering and computer science majors, a minimum of 19-23 credits. To obtain a minor in general business, students must complete the following courses with a grade of at least 2.0 in each course: ECN 210 or both ECN 200 (or 150) and 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 students have met the prerequisites.

International orientation for engineering/computer science students

Coordinator: *Bhushan L. Bhatt*

In view of the ever-increasing globalization of industry, students in engineering and computer science need to be aware of their international opportunities and also to develop an intellectual background that enhances their ability to respond to professional challenges in the global environment.

To obtain a minor in international orientation for engineering/computer science students, students must complete the following courses with a grade of at least 2.0 in each course: one introductory course (4 credits) from IS 210, 220, 230, 240, 250, 260; HST 102, 341. Eight credits of course work in a foreign language consistent with the introductory course. Four to 6 credits to be selected from ECN 200 or 210. One advanced course (4 credits) from PS 314 or ECN 373. Four credits of EGR 496, which requires eight weeks of study/work abroad. Some of the courses listed above also satisfy general education requirements.

This minor does not satisfy the approved minor requirements for the computer science program.

Linguistics

Coordinator: *Peter J. Binkert*

For computer science majors, a minimum of 20 credits. To obtain a liberal arts minor in linguistics, students must complete the following courses with an average grade of at least 2.0: ALS 176 or one 200-level LIN course, LIN 301, and at least 12 linguistics (LIN) credits at the 300 or 400 levels, 4 of which must be at the 400 level.

Management information systems

Coordinator: *Kieran Mathieson*

The minor in management information systems consists of the following 19 credits and any prerequisites for these courses: CSE 125, 130 or 131 or 220; MIS 300, 304 and 316.

Physics

Coordinator: *Norman Tepley*

For computer science majors, a minimum of 20 credits. To obtain a liberal arts minor in physics, students must complete the following courses with an average grade of at least 2.0: PHY 151-152, 158, and at least 10 credits in physics courses numbered 300 or higher.

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 130 or 131; QMM 250 or STA 226; POM 343, and any two courses chosen from POM 441, 445, 448, 480 and QMM 452.

Quantitative methods

Coordinator: *David P. Doane*

For computer science majors, a minimum of 19 credits. To obtain a minor in quantitative methods, students must complete the following courses with a grade of at least 2.0 in each course: CSE 130 or 131; QMM 250 or STA 226; three courses chosen from MIS 444, POM 448, QMM 440 or 452, ECN 405, STA 323 and 324.

Additional Information

Prerequisite courses

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.

Project and independent study courses

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

Application forms are available in the 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 department or to the associate dean. Petitions will be processed according to established university procedures.

Academic conduct

Students are expected to abide by the principles of truth and honesty, which are essential to fair grading. Academic misconduct in any form is not permitted.

Students who are found guilty of academic misconduct as determined by the university Academic Conduct Committee, in any course offered by the school, may be subject to penalties, among which are a reduced grade for the assignment, a grade of 0.0 for the entire course, academic probation, or 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 department. 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 subject to their requirements.

The above rules were established by the undergraduate curriculum committee of the School of Engineering and Computer Science. Students wishing to appeal a ruling on their academic status must address a written petition to the School's committee on academic standing. Petitions may be submitted to the academic adviser or the associate dean.

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 (810) 370-2200

Chairperson: *Subramaniam Ganesan*

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

Associate professors: *Frank A. Cioch, Fatma Mili, Ronald J. Srodawa, Sarma R. Vishnubhotla, Christian C. Wagner*

Visiting assistant professor: *Patrick Dessert*

Special instructor: *Jerry E. Marsh*

Adjunct 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 131	Computing I	4
CSE 171	Introduction to Digital Logic and Microprocessors	4

CSE 231	Computing II	4
CSE 261	Design and Analysis of Algorithms	4
CSE 378	Computer System Architecture	4
		20

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 464	Computer Organization and Architecture	4
Senior design course		4
CSE 470	Microprocessor-based System Design	
or		
CSE 490	Senior Project**	
		12

Electives — 8 credits chosen from:

CSE 343	Theory of Computation (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)	
CSE 490***	Senior Project (2-4)	
CSE 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 150, 200 or 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 164), CSE 131, 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: APM 263, PHY 152, CSE 231, general education, 1-credit free elective, 17 credits; winter semester: MTH 256, EE 222, CSE 261, general education, 15 credits.

Junior year — fall semester: APM 257, ME 221, SYS 317, EE 326, general education, 18 credits; winter semester: ME 241, CSE 378, SYS 325, general education, 15 credits.

Senior year — fall semester: EE 384, CSE 470 or 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 131	Computing I	4
CSE 171	Introduction to Digital Logic and Microprocessors	4
CSE 231	Computing II	4
CSE 261	Design and Analysis of Algorithms	4
CSE 378	Computer System Architecture	4
		20

Professional subjects

Required:

CSE 335	Programming Languages	4
CSE 343	Theory of Computation	4
CSE 402	Social Implications of Computing	1
CSE 450	Operating Systems	4
		13

Electives — 12 credits chosen from:

At least one of the following software design oriented courses: CSE 413, 414, 415, 416, 437, 438, 439, 440, 445, 447, 455, 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)	
CSE 490**	Senior Project (2-4)	
CSE 494**	Independent Study (2-4)	
		12

Approved minor 20

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 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 131, general education, English composition or general education, 16 credits; winter semester: MTH 155, PHY 151, CSE 171, general education, 16 credits.

Sophomore year — fall semester: APM 263, PHY 152, PHY 158, CSE 231, general education, 18 credits; winter semester: MTH 256, CSE 261, course in minor, general education, 15 credits.

Junior year — fall semester: STA 226, CSE 335, course in minor, general education, 16 credits; winter semester: CSE 343, 378, course in minor, general education or free elective, 16 credits.

Senior year — fall semester: CSE 402, 450, professional elective, course in minor, science elective, 17 credits; winter semester: two professional electives, course in minor, free elective, 14 credits.

Minors in computer science or computing for nonengineering majors

The School of Engineering and Computer Science offers two minors, one in computer science and the other in computing, to students with majors other than engineering or computer science.

The minor in computer science is suitable for students with a major in mathematics, physics, chemistry or biology, who may wish to emphasize numerical, scientific and engineering aspects of computing. Students must earn a minimum of 20 credits, including the following courses: CSE 131, 171, 231, 261 or 378, any CSE course numbered 300 or above. A grade of 2.0 is required in each course.

The minor in computing is suitable for students with a major in liberal arts or business, who may wish to emphasize non-numerical and symbolic data processing aspects of computing. Students must earn a minimum of 20 credits as follows: 8 credits from CSE 125, and 130 or 131; 12 credits from CSE 220, CSE courses numbered 232 through 245, CSE 340 and 345. A grade point average of at least 2.0 is required in courses counted toward this minor.

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

Secondary teaching minor in computer science

The secondary teaching minor in computer science requires completion of 28 credits, of which 20 must be as follows: CSE 125, 131, 231, and any other 4-credit CSE courses numbered 261 or higher. In addition, 8 credits must be completed in appropriate courses offered by the School of Education and Human Services; students should consult the secondary education program coordinator (514 O'Dowd, 370-3093) for selection of these courses. A GPA of at least 2.0 is required for courses taken toward this minor. Permission of the Department of Computer Science and Engineering is required for registration in any 300- or 400-level CSE course.

DEPARTMENT OF ELECTRICAL AND SYSTEMS ENGINEERING

133 DODGE HALL (810) 370-2177

Chairperson: *Naim A. Kheir*

Professor emeritus: *David H. Evans*

John F. Dodge Professor: *Robert N. K. Loh*

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

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

Assistant professor: *Sankar Sengupta*

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

Adjunct associate professor: *Bruce E. Stuckman*

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 131	Computing I	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, 470, 472; SYS 433, 458 (4-8)
Any 400 level course with an EE, CSE or SYS designation (4)

EE 490**	Senior Project (2-4)	
EE 494**	Independent Study (2-4)	
ME 454	Solar and Alternate Energy Systems (4)	
PHY 472	Quantum Mechanics I (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 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 487; Control systems — SYS 422, 433; Computers — EE 470, 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, they should 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 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, 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 401	Professional Engineering	1
CSE 131	Computing I	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 372	Properties of Materials	4
SYS 317	Engineering Probability and Statistics	3
SYS 325	Lumped Parameter Linear Systems	3
		32

Professional subjects for dynamic systems and control option (31 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	3
SYS 431	Automatic Control Systems	4
SYS 433	Modern Control System Design	4
		23

Electives — 8 credits chosen from:

At least one of the following design courses: SYS 422, 458; EE 426, 470, 472 (4-8)
Any 400-level course with EE, CSE, SYS or ME designation (4)

SYS 490*†	Senior Engineering Project (2-4)	
SYS 494*†	Independent Study (2-4)	
		8

Professional subjects for manufacturing option (32 credits)

Required:

CSE 231	Computing II	4
SYS 422	Robotic Systems	4
SYS 483	Production Systems	4
SYS 484	Flexible Manufacturing Systems	4
SYS 485	Statistical Quality Control	4
ME 474	Manufacturing Processes	4
		24

Electives — 8 credits chosen from:

At least one of the following courses: SYS 410, SYS 463, SYS 469 (4)
Any 400-level course with the SYS, CSE, EE or ME designation (4)

SYS 490*†	Senior Project (2-4)	
SYS 494*†	Independent Study (2-4)	
		8

Free Electives (may be used to satisfy writing proficiency) 6-7
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 completion of ECN 150, 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 164), CSE 131, 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 241, general education, 16 credits; winter semester: APM 257, EE 222, ME 221 or 241, general education, 1-credit free elective, 16 credits.

Junior year — fall semester: MTH 256, SYS 317 or EE 384, ME 372 (for SYS majors), EE 326 (for EE majors), SYS 325, general education, 17 or 18 credits; winter semester: two professional subjects, one science elective, one free elective, 16 credits.

Senior year — fall semester: EE 384 or SYS 317 and two professional subjects (for EE majors), three professional subjects (for SYS majors), EGR 401, general education, 17 credits; winter semester: three professional subjects, 12 credits.

DEPARTMENT OF MECHANICAL ENGINEERING

170 DODGE HALL (810) 370-2210

Chairperson: *Joseph D. Hovanesian*

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

Associate professors: *Gary C. Barber, Ren-Jyh Gu, Ching L. Ko, Michael A. Latcha, Brian P. Sangeorzan*

Assistant professor: *Kay Keyu Li*

Adjunct professors: *Francis H.K. Chen, Grant R. Gerhart, Raghunath Khetan*

Adjunct associate professors: *Daniel C. Haworth, Simon C.Y. Tung*

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 401	Professional Engineering	1
CSE 131	Computing I	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 372	Properties of Materials	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 that 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 474	Manufacturing Processes (4)
ME 475	Lubrication, Friction and Wear (4)
ME 482	Fluid and Thermal Energy Systems (4)
ME 486	Machine Design (4)
ME 487	Mechanical Engineering CAD/CAM Systems (4)
ME 490**	Senior Project (2-4)
ME 492	Senior Mechanical Engineering Design Project (3)

Not more than 4 credits from:

ME 407	Environmental Engineering (4)
ME 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)
ME 490**	Senior Project (2-4)

No more than 4 credits from:

ME 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)
ME 490**	Senior Project (2-4)
ME 494**	Independent Study (2-4)

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. Manufacturing processes option (15 credits)

Required subjects

ME 474	Manufacturing Processes (4)
SYS 484	Flexible Manufacturing Systems (4)

ME 467	Optical Measurement and Quality Inspection (4)	
or SYS 485	Statistical Quality Control (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 467	Optical Measurement and Quality Inspection (4)	
ME 472	Material Properties and Processes (4)	
ME 475	Lubrication, Friction and Wear (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)	
SYS 422	Robotic Systems (4)	
SYS 431	Automatic Control (4)	
SYS 469	Computer Simulation in Engineering (4)	
SYS 483	Production Systems (4)	
SYS 485	Statistical Quality Control (4)	
ME 490	Senior Project (2-4)	
ME 494	Independent Study (2-4)	
		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 165); BIO 111 and 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 a 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 150, 200 or 210 as part of the general education requirement.

Recommended computer experience

In addition to the required computer courses, it is recommended that students have some experience in computer-aided drawing, such as ME 208; 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 164), CSE 131, 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 241, general education, 16 credits; winter semester: APM 257, EE 222, ME 221 or 241, general education, 15 credits.

Junior year — fall semester: MTH 256, ME 321 and 331, SYS 325, general education, 17 credits; winter semester: ME 361, 372, 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 147-148	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 131	Computing I	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), Andrei Slavin (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 131	Computing I	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 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 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 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 taken up to three times. Offered fall, winter.
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. Offered fall.
Prerequisite: Senior status in engineering.

EGR 496 International Engineering and Computer Science (4)
An independent study or technical internship involving a minimum of eight weeks of residence abroad; student is required to present a final report. Departmental approval is required prior to registration.
Prerequisite: Senior standing.

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. *This course 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 C++. Topics covered include data storage and manipulation, control structures and subprogramming. Engineering and computer science majors should enroll in CSE 131. Students cannot receive credit for both CSE 130 and 131. Offered fall, winter. *This course satisfies the university general education requirement in mathematics, logic and computer science.*
Prerequisite: MTH 012 or equivalent.

CSE 131 Computing I (4)
Introduction to computer programming using a high level programming language such as C++. General methods of problem solving and principles of algorithmic design and object-oriented design. Basic data structures are introduced. Students cannot receive credit for both CSE 130 and 131. Offered fall, winter.
Corequisite: MTH 154.

CSE 171 Introduction to Digital Logic and Microprocessors (4)
Introduction to digital logic using programmable logic devices. Introduction to computer organization and microprocessors. Assembly language programming. Offered fall, winter.
Prerequisite: CSE 131 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 125.

CSE 215 Natural and Artificial Languages (6)
This course satisfies the university general education requirements in language and in mathematics, logic and computer science. 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 231 Computing II (4)
A second course in programming, with emphasis on data abstraction and object-oriented design. The basic data structures in computer science, including stacks, queues, files, lists, trees and graphs, are covered in detail. Concepts of design, analysis and verification are discussed in the context of abstract data types. Examples of applications taken from numeric and symbolic domains are used. Offered fall, winter.
Prerequisite: CSE 131 or equivalent.

CSE 232-245 Programming Language Labs
Prerequisite for each course: Ability to program in one high-level language.
CSE 232 Language Laboratory — FORTRAN (1)
CSE 235 Language Laboratory — PASCAL (1)
CSE 237 Language Laboratory — ADA (1)
CSE 238 Language Laboratory — C++ (1)
Note: students cannot receive credit for both CSE 238 and 130 or 131.
CSE 239 Language Laboratory — Modula-2 (1)
CSE 240 Language Laboratory — LISP (1)
CSE 241 Language Laboratory — FORTH (1)
CSE 244 Language Laboratory — PROLOG (1)
CSE 245 Language Laboratory — SMALLTALK (1)

CSE 261 Design and Analysis of Algorithms (4)
Computer algorithms, their design and analysis. Strategies for constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Development of algorithms for parallel and distributed architectures. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Offered fall, winter.
Prerequisite: CSE 231, APM 263.

CSE 315 Computer Parsing of Natural Language (4)
Identical with LIN 315.
Prerequisite: LIN/CSE 215 or ALS 176, CSE 130 or 131.

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 261, 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 131, junior standing.

CSE 343 Theory of Computation (4)
Formal models of computation, including finite state automata, pushdown automata and Turing machines. Regular and context-free languages. The computational models are used to discuss computibility issues. Offered fall, winter.
Prerequisite: CSE 261 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 131, junior standing.

CSE 378 Computer System Architecture (4)
Design of an elementary digital computer; register transfer and micro-operations; microprogrammed control; organization and architecture of the central processing unit, input/output and memory; multiprocessors; comparisons of the computer architectures of major microprocessors. Offered fall, winter.
Prerequisite: CSE 171 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. Offered fall.
Prerequisite: Senior standing in the School of Engineering and Computer Science.

CSE 412 Artificial Intelligence in Manufacturing (4)
Integration of the techniques and methodologies from artificial intelligence and manufacturing engineering. On the manufacturing side, issues of design, manufacturability, process planning, and cost analysis are cast around feature-based CAD/CAM technologies. The artificial intelligence techniques include standard transparent representation schemes of rule bases and semantic networks as well as the most up-to-date opaque representations of neural networks and genetic algorithms, both areas integrated with issues of fuzzy logic and control. Involves a large class project in the Artificial Intelligence in Manufacturing (AIM) laboratory. Offered winter.
Prerequisite: CSE 416.

CSE 413 Soft Computing (4)
A study of algorithms that can be used to add humanlike intelligence to computer systems. Topics include fuzzy logic, artificial neural networks, genetic algorithms, and classification and regression trees. Applications to machine learning, pattern recognition, and intelligent automation. Offered fall.
Prerequisite: CSE 261 and major standing.

CSE 414 Introduction to Logic Programming (4)
Principles and applications of declarative programming, using PROLOG as an example language. Emphasis is on the second-order logic as the foundation for a programming language. Various applications of logic programming are covered as the laboratory component of the course. Topics include theoretical foundations (propositional calculus, predicate calculus, inference rules, canonical forms, and proof systems), PROLOG (syntax, semantics, search tree, unification, backtracking, variable-binding, and recursion), and applications (symbolic processing, formula manipulation, program verification, rapid prototyping, language processing, expert systems, and theorem proving). Offered fall.
Prerequisite: CSE 261 or equivalent, major standing.

CSE 415 Expert Systems and Decision Support Systems (4)
Covers foundations, state-of-the-art, theory, and practice of both expert systems and decision support systems. Topics in expert systems include knowledge representation, reasoning under uncertainty, weak methods and role-limited methods, and knowledge acquisition reuse in the context of knowledge acquisition tools and meta-tools. Topics in decision support systems include decision theory and decision models, decision support systems architecture, and organizational and group support systems. Offered winter.
Prerequisite: CSE 335 and 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 335.

CSE 417 Applied Numerical Methods: Approximations (4)
Propagation of errors; classical methods for the solution of nonlinear 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 131, MTH 254 or 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 131, and major standing.

CSE 421 Computer Program Construction (4)
The mechanisms underlying programming decisions and systematic procedures for making these decisions. The procedures studied cover the design of iterative loops and sequence statements, along with general heuristics that represent problem solving strategies. The course uses the formalism of relational algebra. The relational algebra is covered in class. Offered fall.
Prerequisite: CSE 343.

CSE 437 Systematic Software Development (4)
A project-driven, language-independent, top-down software development method based on specifications and refinement of every step of design. It involves user-defined Abstract Operations and Abstract Data Types. A variant of the Vienna Development Method (VDM) is used. Specifications techniques are introduced gradually, in step with a nontrivial term project. An emphasis is placed on practical applications of the method. Offered winter.
Prerequisite: Fluency in programming and good command of data structures, APM 263 and major standing.

CSE 438 Verification of Computer Programs (4)
Systematic methods of software verification, testing and analysis, and the supporting CASE tools. Topics: principals of formal verification, static program analysis and dynamic program analysis (testing and debugging). A significant part of the course is its lab component. Offered fall.
Prerequisite: CSE 261 or equivalent, major standing, fluency in high level programming language.

CSE 439 Software Engineering (4)
An overview of software development processes, tools, and techniques from the perspective of learning what they can and cannot do; deciding when, how and why to apply them; and selecting among the available alternatives. Requirements analysis and specification techniques, life-cycle models, process modeling, software design methods, project planning and management, quality assurance, configuration management, program and system testing. Offered fall.
Prerequisite: CSE 261 or equivalent, major standing.

CSE 440 Software Quality (4)
Intended for students who have mastered fundamental design and programming skills. The impact of software design and construction techniques on structural quality for both object-oriented and traditional decomposition. The relationship between software structure and software maintainability (modifiability and readability) and reusability is emphasized. Topics include software design, object-oriented design and its impact on reuse and modifiability, information hiding, layers of abstraction, coupling and cohesion, polymorphism and inheritance hierarchies for reuse, designing reusable components and libraries, structuring code for maintenance, coding for readability, modularity, abstraction mechanisms in design, software complexity. Offered winter.
Prerequisite: CSE 261 or equivalent, major standing.

CSE 445 Database Systems (4)
Design and implementation of relational, hierarchical and network database systems. Query/update data languages, conceptual data model, physical storage methods, database system architecture. Database security and integrity. Relational database systems are emphasized. A project involving an on-line database system is normally assigned. Students cannot receive credit for both CSE 345 and CSE 445. Offered fall, winter.
Prerequisite: CSE 261 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 261 and major standing.

CSE 455 Computer Graphics I (4)
Introduction to the concepts underlying two- and three-dimensional computer graphics. Topics include an overview of graphics hardware and software, capabilities and algorithms of a two-dimensional raster graphics package, basics of three-dimensional raster graphics, algorithms for simple three-dimensional raster graphics, introduction to computer animation. Offered fall.
Prerequisite: MTH 256, CSE 261 and major standing.

CSE 456 Computer Graphics II (4)
Continuation of CSE 455. Topics covered include realistic rendering techniques (hidden line/surface, lighting, shading, texture mapping); mathematics and data structures for curve, surface, and solid representation (including B-spline and Bezier techniques); advanced animation techniques (key-frame animation, morphing). Offered winter.
Prerequisite: CSE 455 or permission of instructor.

CSE 464 Computer Organization and Architecture (4)
Stored program computers, theory and design of arithmetic-logic and control units, hardwired design and microprogrammed design, performance metrics and scalability, pipelined computer design, interfacing input/output units with processors, parallel processing. Emphasis of this course is hardware design and organization. Offered winter.
Prerequisite: CSE 378 or 470.

CSE 465 Compiler Design (4)
A project-oriented course in which the student develops a compiler for a simple language. Formal language and regular grammars, finite-state machines and lexical analysis, context-free grammars and parsing, syntax-directed translation and decorated parse-trees, symbol-table design, quadruples and other intermediate forms, simple optimizations. Offered winter.
Prerequisite: CSE 335 and 343.

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 378 or EE 378.

CSE 471 Design of Embedded Software Computer Systems (4)
Design of real-time systems with microcontrollers such as the 68HC11 and 68332. Object-oriented software development using both assembly language and high-level languages. Use of interrupts. Project-oriented course. Offered winter.
Prerequisite: CSE 470 or equivalent.

CSE 478 Switching Theory (4)
Combinational switching functions, duality, NAND/NOR realization, functional decomposition of combinational circuits, symmetric functions, unate functions, threshold logic and design with threshold elements, iterative circuits, completely and incompletely specified sequential circuits and their minimization, Moor and Mealy models, asynchronous circuits, races, sequential machine decomposition. Emphasis is on the theoretical properties of switching functions and their design. Offered fall.
Prerequisite: CSE 378 and APM 263.

CSE 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.

CSE 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.

CSE 495 Special Topics (2 to 4)
Advanced study of special topics. May be taken more than once.

ELECTRICAL ENGINEERING

EE 222 Introduction to Electrical Circuits (4)
Resistive dc circuits, Kirchhoff laws, Thevenin and Norton theorems, controlled sources, superposition, source transformations. Transient and forced responses 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 and their applications; characteristics and models, analysis and design of diode circuits. Bipolar and unipolar transistors and their applications, characteristics and models, analysis and design of single-stage and basic multistage transistor amplifiers. Design and basic applications of operational amplifiers. PSPICE software for circuit and device modelling. With laboratory and overall design emphasis. Offered fall, winter.
Prerequisite: EE 222 and major standing. Recommended corequisite: EE 384.

EE 345 Electric and Magnetic Fields (4)
Introduction to distributed parameter systems and wave phenomena. Transmission lines, introduction to electromagnetic fields, Maxwell's equations, electrostatics, magnetic fields of steady currents, time varying fields, plane waves, guided waves and radiation. Offered winter.
Prerequisite: MTH 254, EE 222 and major standing.

EE 351 Electromechanical Energy Conversion (4)
Magnetic circuits, transformers, electromechanical energy conversion. Operation of dc and ac machines. Equivalent circuits, input/output characteristics, torque and power analysis and efficiency. Analytical and computer design considerations for electrical machines. Wth laboratory. Offered fall, winter.
Prerequisite: SYS 325.

EE 378 Design of Digital Systems (4)
Development of the components and techniques needed to design basic digital circuits and systems for computers, communication, instrumentation and related applications. Logic elements and assemblies. Combinational logic and design, sequential logic and design, synchronous and asynchronous circuits. Design for fault testing. Overall design at the system architecture level. Students cannot receive credit for both EE 378 and CSE 378. Offered fall, winter.
Prerequisite: CSE 171 and major standing.

EE 384 Electronic Materials and Devices (4)
Semiconductor physics; carrier models and the conduction mechanisms. Theory of the 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. Offered fall.
Prerequisite: Major standing.

EE 426 Advanced Electronics (4)
Transistor circuit design and analysis. Multistage small signal and power amplifier 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. Offered winter.
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)
Computer-aided engineering, analysis, design and evaluation of control systems. Microcomputer/ microprocessor-based hardware and software development of digital controllers, estimators, filters. Data acquisition, graphics displays. On-line system-level and board-level microcomputer-based control experiments. A laboratory and project oriented course emphasizing real-time applications, programming and hardware integration.
Prerequisite: EE 326, 470 and SYS 431.

EE 485 VLSI Circuit Fundamentals and Design Methodologies (4)
NMOS, PMOS and CMOS technologies. Inverters, logic and transmission gates, switching characteristics. Finite state machines, memory and registers. Performance evaluation: speed, area, power and cost tradeoffs. Design projects with actual implementation using standard cell libraries and PLAs with the OCTTOOLS. Offered fall or winter.
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. Fabrication processing simulation using SUPREM. With laboratory and projects. Offered winter.
Prerequisite: EE 384.

EE 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.

EE 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.

EE 495 Special Topics (2 to 4)
Advanced study of special topics in engineering. May be taken more than once.

MECHANICAL ENGINEERING

ME 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.

ME 208 Computer-Aided Engineering Graphics (4)
Engineering sketching, engineering drawing interpretation. Use of computer software such as AutoCAD and MSC/ARIES in engineering graphics: 2D and 3D geometric construction; orthographic projection; multiview layout; sectional and auxiliary views; dimensioning and tolerancing; exploded assembly drawings; solid modeling; Boolean operations; surface creation and intersection; surface rendering. Offered fall, winter.

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 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, 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: ME 372.

ME 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 164), PHY 152 and major standing.

ME 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.

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, 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, 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 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 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 467 Optical Measurement and Quality Inspection (4)
Topics include the state-of-the-art optical methods such as holography, shearography, moire, three-dimensional computer vision, electronic speckle pattern interferometry and laser triangulation; with applications to measurement of displacement, vibrational mode shapes, material properties, residual stresses, three-dimensional shapes, quality inspection and nondestructive testing. Offered fall.
Prerequisite: ME 321 and 361, senior standing in Engineering.

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 372.

ME 474 Manufacturing Processes (4)
Fundamentals and technology of machining, forming, casting and welding. Mechanics of cutting. Molding of polymers. Tolerancing and surface topography. Manufacturing considerations in design. Economics of manufacturing. With laboratory. Offered fall.
Prerequisite: ME 372.

ME 475 Lubrication, Friction, and Wear (4)
Study of fundamental wear mechanisms including: adhesive, abrasive, corrosive and surface fatigue. Boundary and hydrodynamic lubrication. Friction theories. Surface topography characterization. Applications: journal and ball bearings, gears and engine components. Offered spring.
Prerequisite: ME 372 and senior standing in Engineering.

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, 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 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.

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, winter.
Prerequisite: ME 331, 361 and approval of project faculty supervisor.

ME 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.

ME 495 Special Topics (2 to 4)
Advanced study of special topics in engineering. May be taken more than once.

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, sampling distributions, parameter estimation and hypothesis testing. Offered fall, winter.
Prerequisite: Major standing. Corequisite: MTH 254 or 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-, second-, and higher-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, ME 221, APM 257 and major standing.

SYS 410 System Optimization and Design (4)
Classical optimization techniques including Lagrange 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, winter.
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.
Prerequisites: CSE 131 and 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 is 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, representation of power systems and 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 keynote of computer-aided manufacturing (CAM) and computer-integrated manufacturing (CIM). Mathematical representations for geometric entities such as points, lines, conics and parametric curves and surfaces. Hardware and software for the CAD system. Data base structures, data exchanges and CAD downstream applications.
Prerequisite: 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 issues to control the flow of material in manufacturing systems from forecast to finished product. Topics include characterization of production systems, aggregate planning and disaggregation to a master schedule, inventory control, MRP, JIT systems, scheduling and sequencing, project planning and resource balancing.
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 system design. Control charts for variables, control charts for attributes, cusum charts, runs and other process quality monitoring topics. Sampling inspection plans. Fundamentals of design of experiments and their application to product/process design and improvement. Taguchi's approach to robust design and related topics. Offered winter.
Prerequisite: SYS 317.

SYS 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.

SYS 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.

SYS 495 Special Topics (2 to 4)
Advanced study of special topics in engineering. May be taken more than once.

GENERAL STUDIES

121 NORTH FOUNDATION HALL (810) 370-3227

Director: *Carole L. Crum*

Faculty Council for General Studies: *Ann Pogany, chairperson; John Coulishaw, associate professor, Biological Sciences; William Fish, associate professor, Human Resource Development; Robert Gaylor, associate professor, Kresge Library; Thaddeus Grudzien, associate professor, Biological Sciences; Linda Hildebrand, assistant professor, Kresge Library; Roy Kotynek, associate professor, History; Charles Marks, assistant professor, Exercise Science; Jerry Marsh, special instructor, Engineering; Ramune Mikaila, special instructor, Nursing; Nivedita Mukherji, assistant professor, Economics; Kevin Nathan, associate professor, Accounting; Subbaiah Perla, professor, Mathematical Sciences; Michelle Piskulich, assistant professor, Political Science; Brian Sangeorzan, associate professor, Engineering; Robert Stern, associate professor, Chemistry*

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 they may meet program requirements described in a subsequent catalog. Any catalog that 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.

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 study 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.

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.

Advising

Advising is central to the program as students design an individualized and unique program of study based upon their 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 study form and rationale guidelines. Students and the counselor will mutually select a faculty adviser.
3. Develop a plan of study 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 study, students will write a rationale for course selection.
4. Attain committee approval. After the faculty adviser approves them, the plan of study and rationale are returned to the General Studies office and sent to the Faculty Advising Committee for approval. When the plan of study 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 study. Students who want to take courses other than those listed on their approved plans of study must have the consent of their faculty adviser or a General Studies counselor. Plan of Study Substitution forms are available from the General Studies office or faculty advisers. They must be submitted to the General Studies office.

Requirements for the degree in Bachelor of General Studies

To earn the Bachelor of General Studies degree, students must meet the following requirements:

1. Successfully complete at least 24 credits at Oakland University as an admitted candidate for the Bachelor of General Studies degree, excluding courses used to meet the writing proficiency requirement or the general education requirement. Candidacy is authorized by the university and the Faculty Council for General Studies when a student's plan of study and supporting rationale have been approved by the General Studies Faculty Advising Committee. If the plan of study is not submitted in a timely manner, the credits in any current semester may be excluded from the plan of study. (See *Advising* above for additional information)
2. Complete the writing proficiency requirement.
3. Complete the general education requirements. (See *Undergraduate degree requirements.*)
4. Complete the university ethnic diversity requirement. (See *Undergraduate degree requirements.*)

5. Complete a minimum of 124 semester credits.
6. Complete 32 of those credits at the 300 or 400 level.
7. Complete 32 credits at Oakland University; complete the last 4 credits toward the degree at Oakland.

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.

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 eligible 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.

Northwestern Michigan College University Center

Students who have completed an associate degree at Northwestern Michigan College (NMC) can continue work toward a Bachelor of General Studies degree through the University Center at NMC. Complete program information is available through the NMC University Center (Boardman Lake Campus, 616-922-1777) or the Department of Academic Services and General Studies (121 North Foundation hall, 810-370-3227).

SCHOOL OF HEALTH SCIENCES

157 VANDENBERG HALL
(810) 370-3562
Fax (810) 370-4227

Dean: *Ronald E. Olson*

Office of the Dean: *Arthur J. Griggs, assistant to the dean; A. Jayne Hoskin, academic adviser; Alfred W. Stransky, director, Meadow Brook Health Enhancement Institute*

Professor: Gary D. Russi

Consulting professors: *Federico A. Arcari, Kenneth L. Urwiller, John R. Ylvisaker*

Clinical professors: *Seymour Gordon, Myron M. LaBan, Moon J. Pak, John R. Pfeifer, Allen Silbergleit, Clarence B. Vaughn*

Clinical associate professors: *Ali A. Abbasi, George R. Gerber, David R. Pieper*

Clinical assistant professors: *Allen L. Babcock, Jack E. Belen, Peter M. Borata, Nitin C. Doshi, Raina M. Ernstoff, Dale V. Hoekstra, Michael R. Lubetsky, Frederick P. Maibauer, Ricky E. Olson, Kanamarlapudi Rao*

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 of the School of Health Sciences. The institute offers programs addressing health promotion and disease prevention, including programs for health maintenance, cardiac rehabilitation, diabetic health, women's health, nutrition, weight control, stress management, smoking cessation, movement re-education and others. The full-time staff of the institute provides these programs to the university community as well as to the public at large through individual or corporate associations.

Admission to any program offered by the School of Health Sciences may be considered on a competitive basis if the balance between applicants and available instructional resources requires such action to maintain the academic integrity of the program.

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 includes 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 111; 207 or 321
CHM 144-145
MTH*
STA 225 or 226
PHY 101-102 or 151-152
HBS 200**

*See the academic requirements of the individual health science programs for core curriculum course preferences or requirements.

**This course satisfies the university ethnic diversity requirement.

Academic advising

A professional academic adviser is available to assist students with degree requirements, plans of work, course scheduling, transfer course evaluation, health career choices and the process of achieving major standing. The health sciences advising office is located in 159 Vandenberg Hall (370-4195). Freshman and transfer orientation advising is required of all entering students. Thereafter, students are encouraged to make appointments with the adviser periodically to monitor their progress. Health sciences faculty members are also available to assist with curriculum and course questions once students are enrolled in health science major course work.

An elective course, HS 102, Career Exploration in the Health Sciences, is offered to provide students with resources, skills and experiences necessary to make a reasonable choice for their major and career. Included in this course are seminars presented by health care professionals from a variety of disciplines.

To avoid delays in seeing an adviser, students are encouraged to schedule advising appointments during times other than early registration periods. Advisers are obligated to assist students in planning their programs. Ultimately, students are responsible for understanding and fulfilling the degree requirements for graduation as set forth in this catalog.

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 that is 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

The school offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

HS 102 Career Exploration in the Health Sciences (1)
An introductory course specifically for students considering a career in the health sciences. Students will be provided with resources, skills, and experiences necessary to make a reasonable choice for their major and career. Recommended for undecided health science and pre-physical therapy majors in their sophomore year.

HS 201 Health in Personal and Occupational Environments (4)
Current information about the impact of environmental and lifestyle 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. *This course 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 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 111 and BIO 207 or 321.

HS 405 Special Topics (2, 3 or 4)
May be repeated for additional credit.
Prerequisite: Permission of instructor.

HS 451 Mind-Body Medicine (2)
Examines the role of stress, emotions and other psychological states that bring about physiological changes affecting health and disease. Topics include psychoneuroimmunology, stress management, guided imagery, the relaxation response, exercise, nutrition, laughter and humor, and the role of personality. Applications include patient motivation, empowerment and variability in response to treatment.

HS 490 Directed Study (1, 2, 3 or 4)
Student-initiated and problem-oriented directed study focusing on health science issues. May be repeated for additional credit. Graded numerically or S/U.
Prerequisite: Departmental permission.

Exercise Science Program

Director: *Brian R. Goslin*

Associate professors: *Brian R. Goslin, Robert W. Jarski, Charles R. C. Marks, Alfred W. Stransky*

Clinical professors: *Barry A. Franklin, Murray B. Levin*

Clinical associate professors: *John J. Karazim, John F. Kazmierski, Steven J. Keteyian, Creagh E. Milford, Rajendra Prasad*

Adjunct assistant professor: *Jack T. Wilson*

Clinical assistant professors: *Albert A. DePolo, Robert C. Nestor, Chandra S. Reddy, Thomas E. Schomaker, Robert L. Segula*

Clinical instructor: *Henry R. DeLorme*

Lecturers: *Roberta J. Dailey, Gregory R. Grazen, Nancy S. Kennedy*

The exercise science program offers elective courses for students interested in the relationship among physical activity, weight control, disease prevention, stress management and nutrition for 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 6 credits from the following electives: EXS 101-104* (4 credits maximum will count toward the minor; two of these four courses are required to satisfy the prerequisite for the M.S. in EXS program), 207*, 215, 321, 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. Fall and winter semesters.

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. Fall and winter semesters.

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 strength training exercise and health enhancement lectures. Fall, winter and spring semesters.

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. Fall and winter semesters.

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. Fall semester.

EXS 207 Safety and First Aid in Exercise Settings (2)
Understanding of procedures in the immediate and temporary care of victims of an accident or sudden illness in exercise settings. Safety concerns regarding exercise facilities, equipment and programs. Certification in American Red Cross "Responding to Emergencies" and "Basic Life Support" upon completion. Fall semester.

EXS 215 Stress Management (2, 3 or 4)
Concepts and techniques to enable students to manage stress more effectively. Fall and winter semesters.

EXS 304 Exercise Physiology (4)
Effects of exercise and physical training on the physiological systems of the body, with emphasis on cardio-respiratory 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. Fall and winter semesters.
Prerequisite: BIO 111 and 207.

EXS 321 Basic Athletic Training (2)
Identical with PT 321.
Prerequisite: BIO 205, 207; EXS 350 or PT 300.

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. Fall semester.
Prerequisite: BIO 205.

EXS 493 Directed Study and Research (1, 2, 3 or 4)
Special study areas and research in exercise science. May be repeated for additional credit. Offered every semester.
Prerequisite: Departmental permission.

Health Behavioral Sciences Program

Director: *Carl R. Vann*

Professors: *Ronald E. Olson, Philip Singer, Carl R. Vann*

Clinical professor: *Daniel E. DeSole*

Clinical assistant professor: *Jed G. Magen*

Adjunct assistant professors: *William Dobreff, Anthony R. Tersigni*

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

The program offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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. *This course satisfies the university ethnic diversity requirement.*

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 M. Blache, John M. Hoffmann*

Adjunct instructors: *Frank M. Cleary, Patrick R. Frazee, Daniel P. Glazier, Jane Meikle Krebs, Sarunas S. Mingela, Barbara R. Ondrisek*

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 mechanical, electrical, chemical, physical, 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 150 and RHT 160 (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 university ethnic diversity requirement. For industrial health and safety majors, this requirement is satisfied by completing the health science core curriculum course HBS 200.
4. Complete the health science core curriculum. The biology sequence of BIO 111, 207 is preferred.
5. Complete BIO 205, CHM 234-235, MTH 141 and PHY 158, which complement the core curriculum.
6. Complete the major courses: HS 201; IHS courses numbered 301, 302, 304, 311, 313, 320, 350, 352, 401, 403, 430, 440; ENV 355.
7. Complete 14 credits of program perspective course work. Perspective courses may not be counted toward both the general education requirements and this requirement.

8. 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

Industrial health and safety majors must complete 14 credit hours of courses selected to establish special expertise or give greater insight into the various aspects of professional occupational safety and health practice. At least 8 of the 14 credit hours must be at the 300 level or above. Courses cannot be double counted toward both general education and the program perspective requirement. A formal plan of study listing specific courses must be approved by the program director prior to senior status. Early plan approval is recommended. Forms are available from the School of Health Sciences academic adviser.

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, 401 and two of the following: IHS 314, 320, 350, 351, 352, 353, 403, 404, 410, 430.

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

The program offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

IHS 210 Safety and Health at Work (3)
A general introduction to safety and health on the job including injury and illness prevention, emergency response, accident investigation, relevant legislation, and current topics. It is recommended for business, engineering, prelaw, health professions or general studies students. Due to its condensed nature, it may not be used to meet IHS major requirements.

IHS 301 Fundamentals of Industrial Hygiene (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 Exposure Evaluation (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 Technology (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 314 Fire Prevention and Protection (3)
Fundamentals of flame generation and propagation; fire behavior in open and confined spaces; theory of fire fighting methods; fire detection and suppression; property loss control and life safety.
Prerequisite: IHS 301, 311 or permission of instructor.

IHS 320 Industrial Hygiene Exposure Controls (3)
Control principles and practices (engineering, personal protective equipment and administrative) as they relate to chemical, physical and biological hazards in occupational settings.
Prerequisite: IHS 301.

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 311.

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 301, 311; MTH 141.

IHS 352 Industrial Noise Control (2)
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.
Prerequisite: IHS 301 or permission of instructor.

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 301, PHY 102, 158 or permission of instructor.

IHS 401 Industrial Health and Safety Program Administration (3)
Principles of management and program quality assurance; security and protection of property; disaster response planning; policy and procedure development; insurance and risk management. This course serves as the capstone for the IHS sequence.
Prerequisite: IHS 301, 302, 311, 314, 320 or permission of instructor.

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, CHM 235, 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 410 Health Care Facility Safety (2)
Critical health care associated risks, such as blood borne diseases, radiation, medical waste handling and back injuries, as well as the general topics of ergonomics, construction, hazardous waste and fire safety as they relate to diverse health care facilities.

IHS 415 Construction Safety (2)
Emphasis on construction safety practices and principles with an overview of program development, legislative issues and special concerns of the construction industry with respect to worker safety.

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 301, IHS 311.

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 Directed Study in Industrial Health and Safety (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 numerically or S/U.
Prerequisite: Departmental permission.

Medical Laboratory Sciences Program

Director: *J. Lynne Williams*

Associate professor: *J. Lynne Williams*

Clinical professors: *John D. Crissman, Joan C. Mattson, Richard H. Walker*

Clinical associate professors: *Ali-Reza Armin, Barbara Jenkins-Anderson, Raymond E. Karcher, Sudha Kini, Herbert Krickstein, Aaron Lupovitch, Boris K. Silberberg*

Clinical assistant professors: *Elena I. Dvorin, Rebecca Coapman Hankin, Michael M. Joh, Deanna Dupree Klosinski, Richard G. Soper*

Clinical instructors: *Ellen M. Chapin, Susan Dingler, Margaret M. Kluka, Ross R. Lavoie, Melanie Madercic, Barbara C. Potts, Joseph Roszka, Joyce A. Salancy, Deborah D. Thompson, Peggy A. Wenk*

The medical laboratory sciences program is designed to prepare students for professional opportunities in a variety of settings. Graduates may find employment opportunities in hos-pital 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 150 and 160 (with grades of 2.0 or better), or their equivalents, 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, medical laboratory sciences majors will automatically satisfy the requirements in mathematics, logic and computer science, and in natural science and technology.
3. Complete the university ethnic diversity requirement. For medical laboratory sciences majors, this requirement is satisfied by completing the health science core curriculum course HBS 200.
4. Complete the health science core curriculum.
5. Complete BIO 322 or 206, CHM 147-148, CHM 234-235, MTH 121 or 141 and MLS 201, all of which complement the core curriculum.
6. Complete the major course requirements specified under one of the four medical laboratory sciences specializations (cytotechnology, histotechnology, medical technology or nuclear medicine technology).
7. 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: *Sudha 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, 341, 393 and 423; MLS 210 and 312; and 24 credits in clinical courses, CT 401 and 402.

Specialization in histotechnology

Medical Director: *Ali-Reza Armin*

Program Director: *Peggy A. Wenk*

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, medical photography and molecular biology.

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; HS 401; IHS 410; MLS 210, 312; and 24 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 Medical Center University Laboratories, Detroit; Garden City Osteopathic Hospital, Garden City; Holy Cross Hospital, Detroit; St. John Hospital, Detroit; Genesys Regional Medical Center, Flint; and William Beaumont Hospital, Royal Oak. Internships have also been arranged with other Michigan hospital programs under individually approved agreements.

Medical technology specialization requirements

Students accepted into the medical technology specialization must complete the following courses: BIO 325 (or CHM 453, 454), 421, 422, 423, 465, 466; MLS 313, 314, 316, 317, 326, 327, 328; and 24 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; HS 331, 401; IHS 353; MLS 210, 312, 326, 328; PHL 318; PHY 158; and 24 credits in clinical courses, NMT 401, 402.

Course Offerings

The program offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

CYTOTECHNOLOGY

CT 401 Clinical Internship (12)
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 (12)
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 and enzyme histochemical staining methods and their specific applications.

HT 402 Basic Electron Microscopy (6)
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 (3)
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 Special Techniques (3)
Cytogenetics (human chromosomal identification and chromosomal abnormalities); molecular pathology (in situ hybridization and DNA analysis); and management (including topics in education and technical writing).

MEDICAL LABORATORY SCIENCES

MLS 201 Careers in Medical Laboratory Sciences (1)
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 (4)
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 (4)
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 (4)
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 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 (3)
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 (6)
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 (1)
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 (6)
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 (12)
Didactic and clinical experience in clinical nuclear medicine including instrumentation, radiopharmacy, ligand assay, organ imaging and therapy with radionuclides.

NMT 402 Clinical Internship II (12)
Continuation of NMT 401.

Physical Therapy Program

Interim Director: *Christine Stiller Sermo*

Associate professors: *Kornelia Kulig, Osa Jackson Wyatt*

Special instructors: *Christine Stiller Sermo, Kristine A. Thompson*

Visiting assistant professors: *Faye M. Cobb, Gretchen D. Reeves*

Clinical professor: *A. Charles Dorando*

Consulting professor: *Olaf Evjenth*

Clinical assistant professors: *Frank C. Kava, Kristie S. Kava, Bjorn W. Svendsen*

Consulting assistant professor: *Lasse Thue*

Senior clinical instructor: *Cathy A. Larson*

Clinical instructors: *Michael R. Beauvais, Reyna T. Blumentritt, Henry D. Boutros, Jacquelin Drouin, Mary Lynne Drumheller, David K. Gilboe, Dorothy J. Indish, Kathleen Jakubiak Kovacek, Peter R. Kovacek, Rick Orlandoni, Jeffrey Placzek, Marilyn J. Raymond, Helene M. Rosen, Daniel A. Selahowski, Jody L. Tomasic, David A. Tomsich, 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.

Physical therapists are concerned with the prevention and treatment of acute and chronic conditions that 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 to major standing

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 and rhetoric requirements. Acceptance is based on academic performance, letters of recommendation, exposure to the profession and a personal interview. A minimum grade of 2.0 is required in each of the health science core curriculum courses and science, math and psychology courses that complement the core curriculum (see *Requirements for the B.S. degree with a major in health sciences*, items 4 and 5). Students seeking admission to the professional program must submit an *Application for Admission to the Physical Therapy Program*. Applications are accepted from Oakland University students and students transferring from other institutions. These application forms are available from the physical therapy office (121 Vandenberg Hall) from October 15 to December 20 each year for consideration for admission to the program the following spring semester. Students submit these application materials directly to the physical therapy office. The deadline for this application is January 5 and there is an application fee for this process. Transfer students must simultaneously apply to the university admissions office for acceptance to the university. 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.

The pre-professional course requirements are subject to modification. Students are advised to see their academic adviser periodically to insure the completion of the appropriate course work for admission to the physical therapy major program.

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 that culminates in the awarding of the Master of Physical Therapy degree. The Bachelor of Science in health sciences is awarded when a minimum of 140 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 47 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 47 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 140 credits, including the following requirements:

1. Complete the writing proficiency requirement. In satisfying this requirement, students may need to complete RHT 150 and RHT 160 (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 140 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 university ethnic diversity requirement. For health sciences majors, this requirement is satisfied by completing the health science core curriculum course HBS 200.
4. Complete the health science core curriculum.
5. Complete BIO 206 or 322, MTH 141, MTH 122 or 154, PHY 158, PSY 100 or 130, and PSY 225 or 321 or 323, all of which complement the core curriculum.
6. Be admitted to major standing in the professional program.
7. Complete the major program as follows: BIO 381 and 460; EXS 304; HS 324 and 401; PHY 325; PT 300, 301, 311, 330, 331, 332, 333, 334, 351, 360, 370, 420, 442, 452, 460 and 492.

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 each course completed unsatisfactorily or its equivalent is again offered and 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 re-enter 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

The program offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*. Major standing in Physical Therapy is prerequisite to all courses in PT.

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 301 Introduction to Physical Therapy (2)
Orientation to the profession of physical therapy including concepts related to disability and rehabilitation. Characteristics of the profession and the professional expectations for practitioners will be introduced.

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 321 Basic Athletic Training (2)
Course directed to competitive sports and the recognition and immediate care of athletic injuries. Evaluative and treatment procedures and techniques are presented and practiced. Identical with EXS 321.
Prerequisite: BIO 205, BIO 207, EXS 350 or PT 300.

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 (3)
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 351 Clinical Education I (1)
Orientation to clinical education including the practice of basic patient evaluation through supervised experience in the clinical environment.

PT 360 Computer Applications in Physical Therapy (1)
Lecture/lab focusing on basic computer knowledge and skill. Emphasis is on the use of computers in physical therapy practice, education and research.

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.

PT 490 Directed Study (1, 2, 3 or 4)
Student initiated and problem-oriented directed study focusing on physical therapy issues. May be repeated for additional credit. Graded numerically or S/U.
Prerequisite: Departmental permission.

PT 492 Research I (2)
Development of proposal, methodology, data collection and outline of student research project.

SCHOOL OF NURSING

434 O'DOWD HALL
(810) 370-4070
Fax: (810) 370-4279

Dean: *Justine J. Speer*

Office of the Dean: *W. W. Kent, assistant to the dean; Patricia T. Ketcham, learning resource laboratory manager; Sue Lindberg, academic advising coordinator*

Program director: *Diane R. Wilson*

Professor: *Justine J. Speer*

Associate professors: *Anahid Kulwicki, Gary Moore, Carol S. Zenas*

Assistant professors: *Frances C. Jackson, Mary E. Mittelstaedt, Nancy A. O'Connor, Clementine V. Rice, F. Darlene Schott-Baer, Catherine V.H. Vincent, Diane R. Wilson*

Special instructor: *Ramune Mikaila*

Visiting instructors: *Jill Myers Cardwell, Margaret H. Christensen, Lois Gerber, Ersilia A. Hummel, Christina L. Sieloff, Suzanne M. Skowronski, Mary Lou Wesley*

Lecturers: *Roy Aston, Janet Barley, Marva Brooks, Barbara J. Coslow, Dina Faucher, Patricia Felton, Donald Fill, Marlene W. Glaser, Carol S. Gorelick, Margaret A. Harris, Sharon Heskitt, Corrine Kruse, Susan T. Lankowsky, June E. Miller, Kimberly Murphy, Carmon Nicholson-Weekes, Joan C. Phillips, Laureen H. Smith, Martha M. Sturgeon, Norma M. Thompson, Linda Weisberg, Jennifer Whitaker, Lynn Zink*

Adjunct assistant professors: *Patricia T. Ketcham, Therese M. Pilchak, Christine S. Zambricki*

Adjunct instructor: *Lisa Ann Mileto*

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, curricular design, as well as clinical and research programs that meet the rapidly changing requirements of the health care field. Board members consult 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
Donald J. Bortz, Jr., President, Bortz Health Care Corporation
Julius V. Combs, M.D., CEO, United American Health Care
Alan S. Funk, Manager, Horizon Health Care
Joseph F. Galvin, Attorney, Miller, Canfield, Paddock & Stone
Betty Gerisch, R.N., Bloomfield Hills, Michigan
Dorothy L. Hanna, R.N., Associate Hospital Director, William Beaumont Hospital, Royal Oak
Frank W. Jackson III, Director, Employee Relations Law, Blue Cross Blue Shield of Michigan
Harold C. L. Jackson, Jr., Bloomfield Hills, Michigan
Kathleen M. Korbelak, Vice President Nursing Services, Saint John Hospital and Medical Center
Michele M. Lepore, Vice President Administration, Health Alliance Plan
Boris G. Sellers, Executive Director, The Beaumont Foundation
Robert Shapiro, Vice President for Health Care Services, Perry Drug Stores
Luke Ulicny, Assistant Vice President and Deputy General Counsel, Blue Cross Blue Shield of Michigan

Programs Offered

Undergraduate program

The School of Nursing offers instruction leading to the Bachelor of Science in Nursing (B.S.N.). 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 R.N. students who wish to earn the B.S.N.

The objectives of the program are to prepare individuals who will:

1. Apply knowledge synthesized from the humanities and the sciences in the practice of professional nursing,
2. Use clinical judgment in the provision of professional nursing care to diverse populations in a variety of settings in accordance with the *ANA Standards of Care*,
3. Adhere to the *ANA Standards of Professional Performance*.

Graduate program

The School of Nursing offers a program leading to the Master of Science in Nursing (M.S.N.). This program prepares nurses for advanced nursing practice in nursing administration, nurse anesthesia or adult health nursing. A post-master's certificate program for family nurse practitioner is planned. For more information, see the *Oakland University Graduate Catalog*.

Admission

The pre-nursing year

Students wishing to enter pre-nursing 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 to the pre-nursing program at Oakland University. See the sections on admission to the School of Nursing and *Admissions* for additional information.

During the pre-nursing 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 111	Biology (4)
RHT 150	Composition I (4)
RHT 160	Composition II (4)
PSY 100	Foundations of Contemporary Psychology or
PSY 130	Psychology and Society (4)
PSY 225	Introduction to Lifespan Developmental Psychology (4)

Students must also complete MTH 011 Elementary Algebra with a minimum grade of 2.0, or pass a placement test prior to admission to the nursing program. The grade for MTH 011 will not be included in the calculation of the pre-nursing grade point average. Credits for MTH 011 do not apply to any degree at Oakland University.

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 pre-nursing courses with a cumulative grade point average of 3.00, and earn a minimum grade of 2.0 in each. The student must also be in good standing in the university (minimum overall grade point average of 2.00).

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 pre-nursing credits at Oakland University. The School of Nursing encourages and actively seeks male and minority applicants. Individuals with disabilities will be considered for admission to the School of Nursing on an individual basis related to their ability to complete the program, including clinical practice requirements and the provisions of safe patient care, with or without reasonable accommodations. In addition, admission to the nursing program beginning in 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, Hepatitis B vaccination and correction of any correctable physical limitations (at the students' expense).
2. Obtaining malpractice insurance coverage of at least $1,000,000 per occurrence for the sophomore, junior and senior years (at the students' expense).
3. Completion of an approved CPR class within the last year.

All of the required information must be submitted to the School of Nursing by deadlines specified in the students' admission letters. It is important that students maintain their own health insurance for illness or injury. Clinical agencies are not required to provide free treatment for students and will bill individuals for use of their emergency or employee health services.

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 pre-nursing 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. See *Transfer student information* in the Academic Policies and Procedures section of this catalog for additional information about university transfer policy, including transfer of credit from community colleges.

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 the university ethnic diversity requirement.
3. 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.

4. Maintain a cumulative grade point average of at least 2.50 in all nursing courses.
5. Complete at least 32 credits at the 300-level or above.

Standard program plan

Fall			Winter		
Pre-nursing			**Pre-nursing**		
*CHM 104	Introduction to Chemical Principles	(4)	*RHT 160	Composition II	(4)
*RHT 150	Composition I	(4)	*BIO 111	Biology	(4)
*PSY 100	Foundations of Contemporary Psychology	(4)	*CHM 201	Organic and Biological Chemistry	(4)
OR			*PSY 225	Introduction to 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: Completion of MTH 011 with a minimum grade of 2.0 or passing a placement test is required for admission to the School of Nursing. Credits for MTH 011 do not apply to any degree at Oakland University.

*Courses required for admission to the nursing program and used in the calculation of the pre-nursing grade point average.

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 coverage of at least $1,000,000 per occurrence.
3. Completion of an approved 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 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 class standing 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, a laboratory grade, or a theory grade, when a course contains all components, i.e 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 GPA of at least 2.50 in all nursing courses to remain in good academic standing. If a student's nursing GPA falls below 2.50, the student is automatically placed on probation. If a student increases the nursing GPA 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 GPA of at least 2.50 in nursing courses.
3. A student must have a grade of at least 2.0 in all pre-nursing courses and BIO 205, 206, 207 and 307.

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. A cumulative grade point average of 2.80 or better is required for admission to the pre-R.N./B.S.N. degree completion sequence.

Registered nurses who enter the university under an undecided category with a grade point average below 2.8 may change to pre-R.N./B.S.N. upon completion of a minimum of 12 credits (applicable to the nursing program) at Oakland University with a GPA of 2.8 or higher. 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 in 4. 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 205, 222, 420, 422, 430 and 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.

Student Nurses Association of Oakland University

Pre-nursing and nursing students are eligible and encouraged to become members of the Student Nurses Association of Oakland University. SNAOU 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.**

The School of Nursing offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

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. *This course satisfies the university ethnic diversity requirement.*
Prerequisite or corequisite: BIO 205 and 206.
Corequisite: NRS 223 and 225.

NRS 222 Transition to Professional Nursing (5)
Introduces framework of nursing curriculum, including the concepts of human being, environment, health and nursing. Opportunity for the demonstration of clinical competency. For registered nurses only.
Prerequisite: Admission to pre-R.N./B.S.N. degree completion sequence.

NRS 223 Introduction to Professional Nursing I (6)
Introduces framework of nursing curriculum, including the concepts of human being, environment, health and nursing. Basic nursing skills are applied to the care of healthy clients.
Prerequisite or corequisite: BIO 205 and 206.
Corequisite: NRS 205 and 225.

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.
Prerequisite or 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, 223, and 225.
Corequisite: NRS 230.

NRS 322 Pathophysiology (3)
Examines how physiological functions are modified by disease processes.
Prerequisite: Completion of School of Nursing program plan for sophomore year.

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 School of Nursing program plan for sophomore year.
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 School of Nursing program plan for sophomore year.
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 School of Nursing program plan for sophomore year.

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 School of Nursing program plan for sophomore year.
Corequisite: NRS 325.

NRS 334 Nursing Care of the Emerging Family (4)
Experience in the care of families throughout the child-bearing 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 School of Nursing program plan for sophomore year.
Corequisite: NRS 325.

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 School of Nursing program plan for junior year.

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 School of Nursing program plan for junior year.

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 School of Nursing program plan for junior year.
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 School of Nursing program plan for junior year.

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 School of Nursing program plan for junior year.

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 March 15, 1995, as they were available on the publication date.

Officer of Instruction

GARY D. RUSSI, Interim President of Oakland University, Vice President for Academic Affairs and Professor of Health Sciences; Ph.D. University of Kansas

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, Associate Professor of Art History; Ph.D., Princeton University
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Ronald J. Forbes, B.B.A., Business Manager
Thomas A. Ford, M.S., A.T.,C., Athletic Trainer
Andrew Glantzman, M.A., Sports Information Director
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Peter N. Hovland, M.A., Men's Swimming Coach
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Kristal Jeffrey, B.S., Women's Tennis Coach
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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 Vice President for Academic Affairs 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 16 such committees whose responsibilities reflect the range of the Senate's concerns.

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Academic Computing Committee
Academic Conduct Committee
Academic Standing and Honors Committee
Admissions and Financial Aid Committee
Assessment Committee
Budget Review Committee
Campus Development and Environment Committee
Committee on Human Relations
General Education Committee
Graduate Council
Planning Review Committee
Research Committee
Steering Committee
Teaching and Learning Committee
University Committee on Undergraduate Instruction

Course Reference

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PLANNING PAGE

General Education Requirements			
Date	Field Category	Course Taken	Credits
	Arts		
	Literature		
	Language		
	Western Civilization		
	International Studies		
	Social Science		
	Mathematics		
	Natural Science		

Total credits
(Mininum 32)

Writing Proficiency Requirements	
	Rhetoric 150
	Rhetoric 160

Ethnic Diversity Requirements	
	Course Taken

College or School Requirements			
Date	Field Category	Course Taken	Credits

Total credits

Major:	

Major Requirements

Date	Category	Courses Taken	Credits

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
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31. Observatory
32. Lowry Child Care Center
33. Golf Course Clubhouse
34. John Dodge House
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36. Carriage House
37. Sunset Terrace
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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)
46. Varner House
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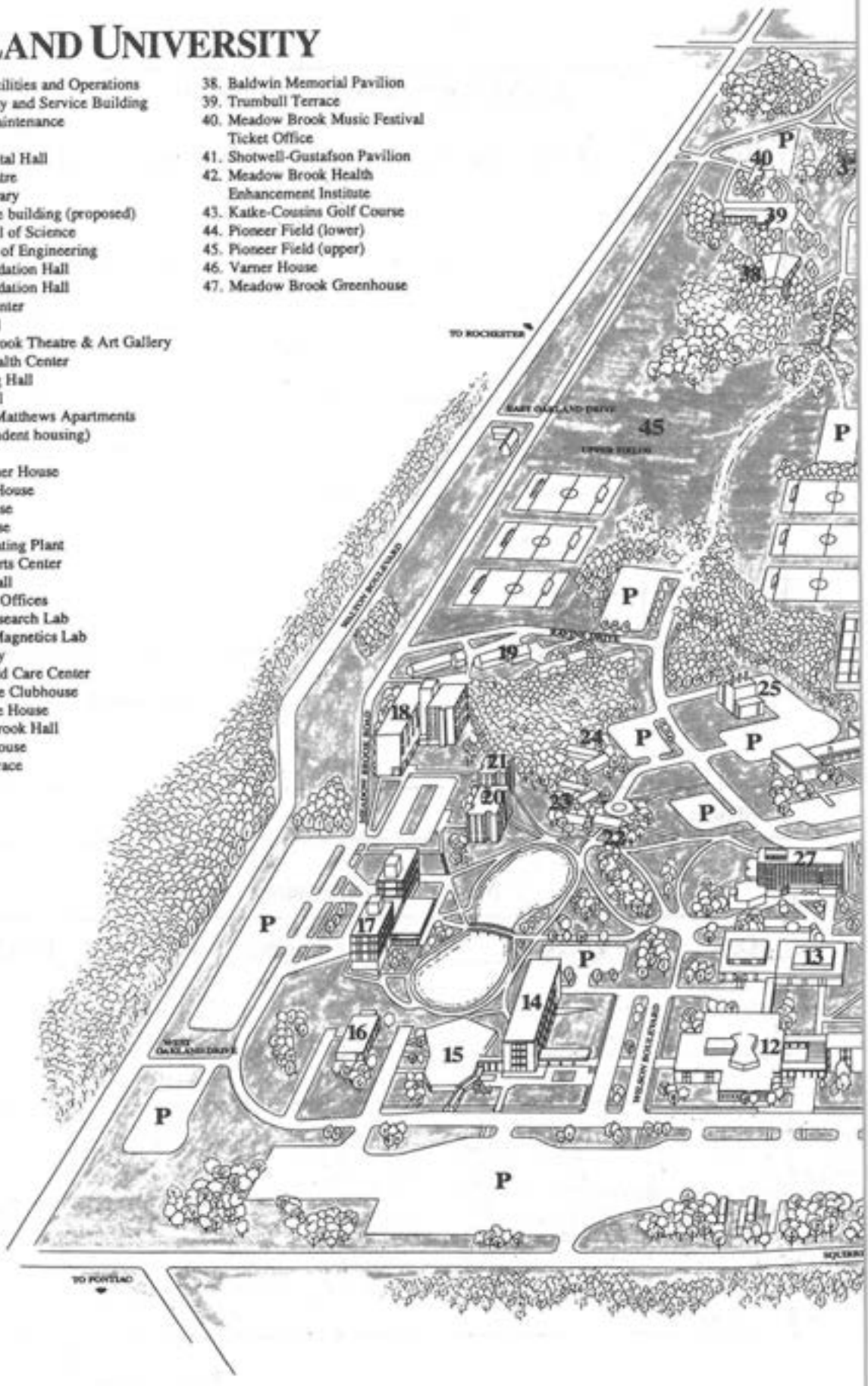

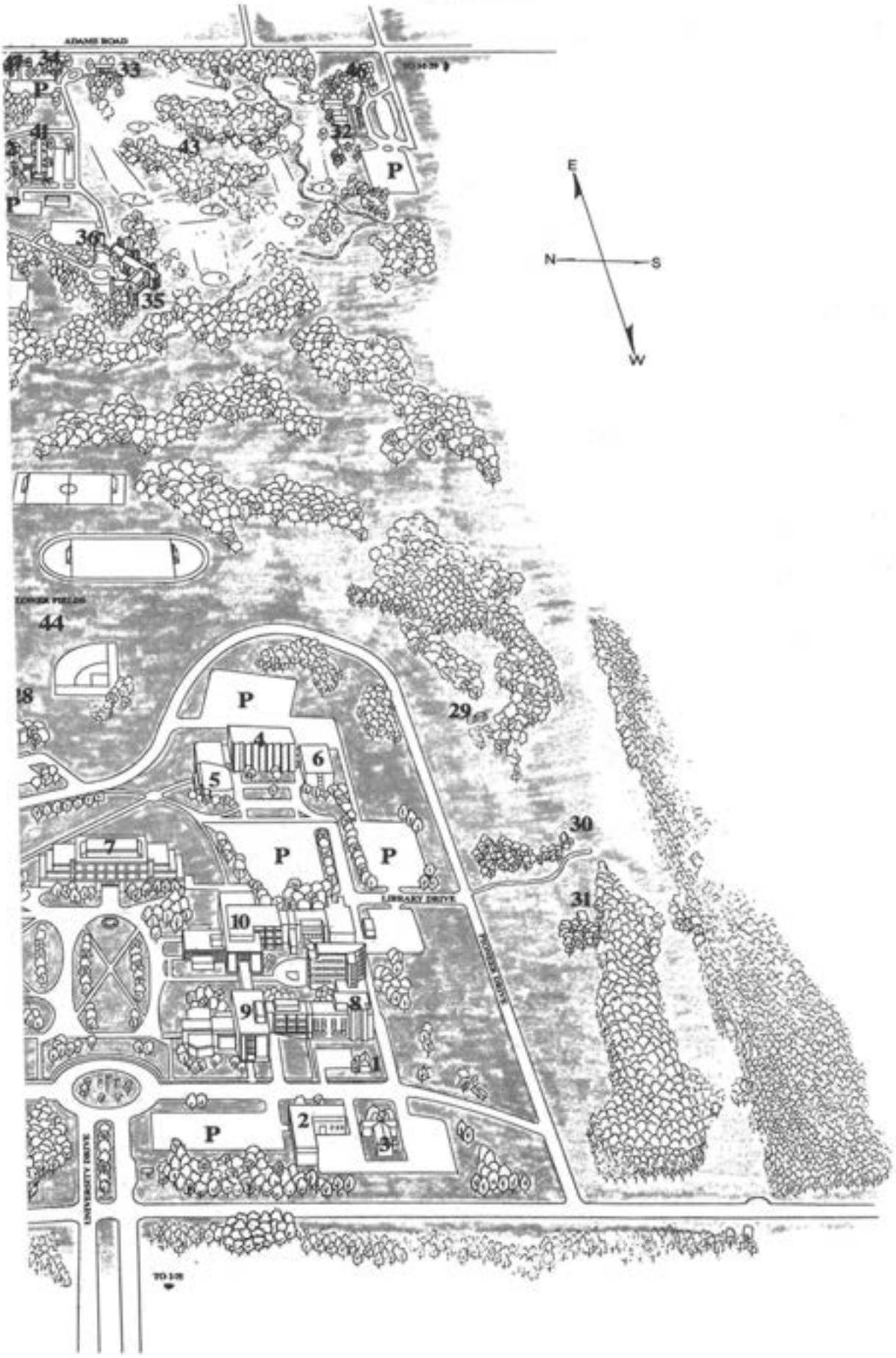
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