

**HANDBOOK FOR UNDERGRADUATE STUDENTS**  
**CASE WESTERN RESERVE UNIVERSITY**  
**1997 – 1998**

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This *Handbook* is intended to provide faculty and students with a concise description of the academic requirements, programs, and regulations that apply to students who are candidates for any of the several baccalaureate degrees offered by Case Western Reserve University. The information contained herein is subject to change at any time. For more detailed information regarding the academic programs, rules, regulations and procedures of the colleges, consult the *Bulletin*, your dean or your adviser.

Students are responsible for familiarizing themselves with the requirements, regulations and deadlines that pertain to their academic programs and activities. Ignorance of these is not justification for exceptions or exemptions.

***Students matriculating in Fall, 1997 or Spring/Summer, 1998 must fulfill the degree requirements as described in this handbook.***

***Students who matriculated in Case Western Reserve University prior to Fall, 1997 may choose to fulfill the requirements as described in this handbook or in the handbook published in the year of matriculation.***

#### **Notice of Nondiscriminatory Policy as to Students**

Case Western Reserve University admits students of any race, religion, age, sex, color, disability, sexual orientation, and national or ethnic origin to all the rights and privileges, programs, and activities generally accorded or made available to students at the University. It does not discriminate on the basis of race, religion, age, sex, color, disability, sexual orientation, or national or ethnic origin in administering its educational policies, admission policies, employment, promotion and compensation policies, scholarship and loan programs, and athletic or other University-administered programs.

#### **Case Western Reserve University Statement of Ethics**

Universities seek to preserve, disseminate and advance knowledge. At CWRU, as elsewhere, we recognize that to fulfill these purposes requires a norm of expected conduct shared by all in the University community, governed by truthfulness, openness to new ideas, and consideration for the individual rights of others, including the right to hold and express opinions different from our own.

The University's mission rests on the premise of intellectual honesty: in the classroom, the laboratory, the office, and the solitary examination desk. Without a prevailing ethic of honor and integrity not only in scientific pursuits but also in all scholarly activity, the very search for knowledge is impaired. In these respects, each of us -- especially but not exclusively faculty -- must regard oneself as a mentor for others.

These principles we strive to uphold make it possible for the larger society to place trust in the degrees we confer, the research we produce, the scholarship we represent and disseminate, and the critical assessments we make of the performance of students and faculty, as well as judgments of staff and administrators.

To safeguard the standards on which we all depend, each of us must therefore accept individual responsibility for our behavior and our work, and refrain from taking credit for the work of others.

The culture of a university also requires that the rights of all be protected, particularly by those entrusted with authority for judgment of the work of others.

The University being a human community is subject to human failings, ambiguities and errors. It is therefore the responsibility of the bodies regulating the affairs of faculty, students, and staff to maintain processes for judging and resolving instances where these principles may have been violated. However, all such systems depend for their effectiveness, in turn, on the acceptance of common norms of contact -- the ties of trust which bind the university community together.



## GENERAL REQUIREMENTS FOR ALL BACHELOR'S DEGREES

*Students matriculating in fall, 1997, spring, 1998, or summer, 1998, must complete degree requirements as described in this handbook. Students who matriculated prior to fall, 1997, may complete degree programs as prescribed in this handbook, or may complete degree programs as prescribed by the handbook published for the academic year in which they matriculated.*

The bachelor's degree programs require students to study one field in depth (the major), and to complete general education requirements or a core curriculum as appropriate to the major field and degree program selected. There is overlap among core curricula and general education requirements, which allows students flexibility in the choice of majors and degree programs.

Every candidate for a baccalaureate degree from the University must:

- I. As specified for the degree sought, complete a foundation curriculum\* (core curriculum or general education requirements) which includes courses to develop quantitative, analytical, and communication skills, and a heightened awareness of human values, cultures and institutions;
- II. Complete a course of studies with a cumulative grade point average of no less than 2.0 for work taken at Case Western Reserve University;
- III. Earn in residence at Case Western Reserve University a minimum of 60 semester hours, of which at least 30 must be earned after the student achieves senior status;
- IV. Complete two semesters of physical education. This is normally done in the first year through a combination of half and/or full semester offerings in Lifetime Sports Activities.

\*There are four foundation curricula:

- A. Arts and Sciences General Education Requirements (page 12)  
Required of all students who are candidates for the B.A. and the following B.S. degrees: Art Education, Astronomy, Biochemistry, Biology, Chemistry, Geological Sciences, Mathematics, Music Education, Nutrition, Nutritional Biochemistry and Metabolism, Physics, and Statistics.
- B. Case Core Curriculum (page 53)  
Required of all students who are candidates for the Bachelor of Science in Engineering (B.S.E.) degree or for the B.S. in Computer Science.
- C. School of Nursing General Education Requirements (page 65)  
Required of all candidates for the Bachelor of Science in Nursing (B.S.N.) degree.
- D. Weatherhead School of Management General Education Requirements (page 67) Required of students who are candidates for the B.S. in Accounting or in Management.

## **Minors**

For the degrees described above, minors are not required. However, students have the option of completing a minor in a discipline other than the major, in addition to the major. A minor concentration normally requires 15 - 18 semester hours, and will be indicated on a student's transcript if the requirements, as outlined below, are fulfilled.

### **Minors for Students Majoring in Fields Other Than Engineering**

1. A minor program shall consist of no fewer than 15 and no more than 18 semester hours of specified course work in a discipline other than the student's major.
2. The responsibility for designating the requirements for a minor shall lie with the department offering the minor.
3. For all courses taken to satisfy minor requirements and for which grades are averaged, students pursuing degrees based on the General Education Requirements of the College of Arts and Sciences, the Weatherhead General Education Requirements, or the School of Nursing General Education Requirements must earn a minimum cumulative average of 2.0. Transfer students who wish to complete a minor must complete at Case Western Reserve University at least half the requirements for the minor.

*Note: Students who matriculated prior to Summer, 1995 and are following the Western Reserve Core for the B.A. are required to complete a minor.*

### **Minors for Engineering Majors**

An engineering student's academic work in a discipline other than the student's major may be recognized as a minor. A student will be entitled to have the minor designation recorded on his/her transcript upon successful completion of a basic academic program in a discipline not within the student's major. The completion of a minor academic program does not relieve the student of any requirements for his/her major degree. The following rules govern the minor program for an engineering student:

1. A minor program shall consist of no fewer than 15 and no more than 18 semester hours of course work.
2. The responsibility for designating the requirements for a minor shall lie with the department offering the minor.
3. With the exception of the humanities and social science requirement stated in section 4 below, no more than two courses taken for the minor may be used simultaneously to satisfy the requirements of the student's major field, including department requirements, technical electives, the Case Core, and the Engineering Core.
4. A student who chooses to do so may, by taking work that goes beyond the requirement for a four course sequence in the humanities or social sciences, complete a minor concentration in either of these areas, and substitute the minor for the four-course sequence.

### **Application for Graduation**

Students must file an application in the Office of Undergraduate Studies (Baker 102) by the following dates: October 10 for January graduation; December 2 for May graduation; July 15 for August graduation. Students who have completed all degree requirements at the end of four years or more, must graduate at that time. Students completing all requirements in less than four years may choose to graduate early or at the end of four years.

### **Graduation Check**

Students should schedule an appointment for a graduation check in the Office of Undergraduate Studies before they complete scheduling for their final semester prior to graduation to assure that they will meet all requirements for graduation.

## MAJORS/MINORS/SEQUENCES FOR CWRU UNDERGRADUATE DEGREES

**Major - program of 10 or more courses (required)**

\* = available only as 2nd major for B.A.

**Minor - program of five or six courses (optional)**

**Sequence - four or five courses (required for degrees based on CASE CORE)**

HA = Humanities and Arts      SS = Social Sciences

**Foundation - foundation curriculum required for specified degree/major**

A&S = Arts and Sciences General Education Requirements      CA = CASE CORE

FPB = School of Nursing General Education Requirements

WSOM = Weatherhead School of Management General Education Requirements

<b>CODE</b>	<b>SUBJECT (DEGREE PROGRAM, page)</b>	<b>AVAILABLE AS</b>	<b>FOUNDATION</b>
ACC	ACCOUNTING (BS, p. 69)	major or minor	WSOM
EAR	AEROSPACE ENGINEERING (BS, p. 56)	major or minor	CA
AMS	AMERICAN STUDIES (BA, p. 15)	major, minor or HA sequence	A&S
ANT	ANTHROPOLOGY (BA, p. 16)	major, minor or SS sequence	A&S
ARE	ART EDUCATION (BS, p. 17)	major	A&S
ARH	ART HISTORY (BA, p. 19)	major, minor or HA sequence	A&S
ARS	ART STUDIO (p. 18)	minor or HA sequence	--
AIN	ARTIFICIAL INTELLIGENCE (p. 19)	minor, HA sequence or SS sequence	--
ASI	ASIAN STUDIES (BA, p. 20)	major, minor or HA sequence	A&S
AST	ASTRONOMY (BA or BS, p. 20)	major or minor	A&S
BCH	BIOCHEMISTRY (BA or BS, p. 21)	major or minor	A&S
BIO	BIOLOGY (BA or BS, p. 22)	major or minor	A&S
EBI	BIOMEDICAL ENGINEERING (BS, p. 56)	major or minor	CA
ECE	CHEMICAL ENGINEERING (BS, p. 57)	major or minor	CA
CHE	CHEMISTRY (BA or BS, p. 23)	major or minor	A&S
CHI	CHINESE (p. 24)	minor or HA sequence	--
ECI	CIVIL ENGINEERING (BS, p. 58)	major or minor	CA
CLS	CLASSICS (BA, p. 24)	major, minor or HA sequence	A&S
COS	COMMUNICATION SCIENCES (BA, p. 25)	major, minor or SS sequence	A&S
CLT	COMPARATIVE LITERATURE (BA, p. 26)	major, minor or HA sequence	A&S
ECM	COMPUTER ENGINEERING (BS, p. 59)	major or minor	CA
CMP	COMPUTER SCIENCE (BA, p. 26)	major or minor	A&S
CMP	COMPUTER SCIENCE (BS, p. 59)	major or minor	CA
ECO	ECONOMICS (BA, p. 27)	major, minor or SS sequence	A&S
EDU	EDUCATION (p. 27)	minor	--
EAP	ELECTRICAL ENGINEERING (BS, p. 60)	major or minor	CA
EGR	ENGINEERING - undesignated (BS, p. 64)	major	CA
EGL	ENGLISH (BA, p. 28)	major, minor or HA sequence	A&S
GNV	ENVIRONMENTAL GEOLOGY (BA, p. 31)	major	A&S
EST	ENVIRONMENTAL STUDIES (BA, p. 29)	major <sup>*</sup> , minor or HA sequence or SS sequence	A&S
EFT	FLUID AND THERMAL ENGINEERING (BS, p. 61)	major	CA
FRC	FRENCH (BA, p. 29)	major, minor or HA sequence	A&S
FRS	FRENCH STUDIES (BA, p. 30)	major, minor or HA sequence	A&S

<b>CODE</b>	<b>SUBJECT (DEGREE PROGRAM, page)</b>	<b>AVAILABLE AS</b>	<b>FOUNDATION</b>
GEO	GEOLOGICAL SCIENCES (BA or BS, p. 31)	major or minor	A&S
GEM	GERMAN (BA, p. 32)	major, minor or HA sequence	A&S
GES	GERMAN STUDIES (BA, p. 33)	major or minor	A&S
GER	GERONTOLOGICAL STUDIES (BA, p. 33)	major <sup>*</sup> , minor or SS sequence	A&S
HST	HISTORY (BA, p. 34)	major, minor or HA sequence	A&S
HSP	HISTORY AND PHILOSOPHY OF SCIENCE AND TECHNOLOGY (BA, p. 35)	major	A&S
HSS	HISTORY OF TECHNOLOGY AND SCIENCE (p. 35)	minor or HA sequence	--
HDE	HUMAN DEVELOPMENT (p. 35)	minor or SS sequence	--
IST	INTERNATIONAL STUDIES (BA, p. 36)	major	A&S
JAP	JAPANESE (p. 36)	minor or HA sequence	--
LIT	LITERATURE (BA, p. 37)	major or HA sequence	A&S
MGT	MANAGEMENT (BS, p. 70)	major	WSOM
MIS	MANAGEMENT INFORMATION & DECISION SYSTEMS (p. 71)	minor	--
EMS	MATERIALS SCIENCE & ENGR. (BS, p. 61)	major or minor	CA
MAT	MATHEMATICS (BA or BS, p. 38)	major or minor	A&S
EMC	MECHANICAL ENGINEERING (BS, p. 62)	major or minor	CA
MUS	MUSIC (BA, p. 39)	major, minor or HA sequence	A&S
MUE	MUSIC EDUCATION (BS, p. 41)	major	A&S
NAT	NATURAL SCIENCES (BA, p. 42)	major <sup>*</sup> or minor	A&S
NUR	NURSING (BSN, p. 66)	major	FPB
NTR	NUTRITION (BA or BS, p. 42)	major or minor	A&S
NBM	NUTRITIONAL BIOCHEMISTRY & METABOLISM (BA or BS, p. 43)	major	A&S
PHI	PHILOSOPHY (BA, p. 44)	major, minor or HA sequence	A&S
PHY	PHYSICS (BA or BS, p. 44)	major or minor	A&S
POS	POLITICAL SCIENCE (BA, p. 45)	major, minor or SS sequence	A&S
POL	POLYMER SCIENCE & ENGR. (BS, p. 62)	major or minor	CA
PAR	PRE-ARCHITECTURE (BA, p. 18)	major <sup>*</sup> , minor or HA sequence	A&S
PSY	PSYCHOLOGY (BA, p. 46)	major, minor or SS sequence	A&S
PPY	PUBLIC POLICY (p. 47)	minor	--
RLG	RELIGION (BA, p. 47)	major, minor or HA sequence	A&S
RUS	RUSSIAN (p. 47)	minor or HA sequence	--
SOC	SOCIOLOGY (BA, p. 48)	major, minor or SS sequence	A&S
SPA	SPANISH (BA, p. 48)	major, minor or HA sequence	A&S
SPM	SPORTS MEDICINE (p. 44)	minor	--
STA	STATISTICS (BA or BS, p. 49)	major or minor	A&S
ESC	SYSTEMS/CONTROL ENGR. (BS, p. 63)	major or minor	CA
THR	THEATER/Acting/Dance/Technical (BA, p. 51)	major, minor or HA sequence	A&S
UGS	UNDERGRADUATE SCHOLAR (BA or BS, p. 80)	individually designed major	--
WMN	WOMEN'S STUDIES (p. 51)	minor, HA sequence or SS sequence	--

## DEPARTMENT REPRESENTATIVES

Students wishing to declare a major or minor may consult the following academic department representatives for assignment of a departmental adviser or for additional information regarding the Humanities/Social Science sequences. Some departments may designate other faculty as COOP advisers and they are listed in the individual department sections of the Handbook.

<b>Program</b>	<b>Representative</b>	<b>Office</b>	<b>Phone</b>	<b>E-mail</b>
ACC BS	Prof. Campbell	653 Sears Library	5479	drc3
AIN Minor	Prof. Ernst	508 Olin Building	2839	gwe
AMS BA	Prof. Goist	218 Guilford House	4117	pdg
ANT BA	Prof. Beall	217 Mather Memorial	2277	cmb2
ANT BA	Prof. Korbin	210 Mather Memorial	2278	jek7
ARE BS	Prof. Shuckerow	115 Wickenden Bldg.	2714	txs10
ART BA	Prof. Olszewski	319 Mather House	2347	ejo
ASI BA	Prof. Deal	217 Mather Memorial	2205	wed
AST BA/BS	Prof. Luck	414A Smith Bldg.	6697	rel2
BCH BA/BS	Prof. Harpst	W463 Medical School	3336	jah8
BIO BA/BS	Dr. Rosenberg	103 Biology Bldg.	3558	mjr4
CHE BA/BS	Prof. Stuehr	106SB Millis Science	5099	jes6
CHI Minor	Prof. Benseler	204 Guilford House	3071	dpb5
CLS BA	Prof. Laing	402 Mather House	6026	drl2
CLT BA	Prof. Benseler	204 Guilford House	3071	dpb5
CMP BA/BS	Prof. Ernst	508 Olin Building	2839	gwe
COS BA	Prof. Chapman	412 Hearing & Speech	2470	kxc5
EAP BS	Prof. Garverick	710B Glennan Bldg.	6436	slg9
EAP Minor	Prof. Hazony	710A Glennan Bldg.	3937	dxh2
EAR BS	Prof. T'ien	415 Glennan Bldg.	4581	jst2
EBI BS	Prof. Saidel	504 Wickenden	4094	gms3
ECE BS	Prof. Feke	111B Smith Bldg.	2750	dlf4
ECE BS	Prof. Savinell	111A Smith Bldg.	2728	rfs2
ECI BS	Prof. Saada	105A Bingham Bldg.	2427	axs31
ECM BS	Prof. Ernst	508 Olin Bldg.	2839	gwe
ECO BA	Prof. Peirce	400 Wickenden Bldg.	4131	wsp
EDU Minor	Prof. Shuckerow	115 Wickenden	2714	txs10
EFT BS	Prof. Greber	417 Glennan Bldg.	6451	ixg2
EMC BS	Prof. Prah	418 Glennan Bldg.	2941	jmp
EMS BS	Prof. Michal	316 White Bldg.	5070	gmm3
EMS Minor	Prof. DeGuire	412 White Bldg.	6481	mrd2
EGL BA	Prof. Ferguson	215 Guilford House	2217	scf
EGR BS	School of Engineering	307 Olin Bldg.	8760	
ESC BS	Prof. Chizeck	605 Olin Bldg.	3836	hjc2
EST BA	Prof. McCall	211C Smith Bldg.	3676	plm4
FRC BA	Prof. LeHir	308 Guilford House	2233	mxl11
FRS BA	Prof. LeHir	308 Guilford House	2233	mxl11

<b>Program</b>	<b>Representative</b>	<b>Office</b>	<b>Phone</b>	<b>E-mail</b>
GEO BA/BS	Prof. Banks	212 Smith Bldg.	3765	pob
GEO BA/BS	Prof. McCall	211C Smith Bldg.	3676	plm4
GEM BA	Prof. Benseler	204 Guilford House	3071	dpb5
GER BA	Prof. Deimling	223C Mather Memorial	5173	gtd
GES BA	Prof. Benseler	204 Guilford House	3071	dpb5
GNV BA/BS	Prof. Banks	212 Smith Bldg.	3765	pob
HDE Minor	Prof. Settersten	226 Mather Memorial	2697	ras2
HSP BA	Prof. Rocke	104 Mather House	2614	ajr
HSS Minor	Prof. Pursell	216 Mather House	2261	cxp7
HST BA	Prof. Altschul	209 Mather House	2514	mxa6
IST BA	Prof. McHale	113 Mather House	2424	vem
JAP Minor	Prof. Benseler	204 Guilford House	3071	dpb5
LIT BA	Prof. Stonum	315 Guilford House	3342	gxs11
MAT BA/BS	Prof. Singer	307A Yost Hall	2892	das5
MGT BS	Prof. Strachan	341 Enterprise Hall	2052	jls13
MIS Minor	Prof. Kennedy	698 Enterprise Hall	2094	mhk
MUE BS	Prof. Ciepluch	302 Haydn Hall	2361	gxc6
MUS BA	Prof. Duffin	201 Haydn Hall	2400	rwd
NAT BA	Dr. Westin	102 Baker Bldg.	2928	jxw3
NBM BA/BS	Prof. Barkoukis	201 Dental School	2440	hdb
NTR BA/BS	Prof. Cicirella	201 Dental School	2440	mmc3
NUR BSN	Dr. Suresky	School of Nursing	8839	
PAR Minor	Prof. Shuckerow	115 Wickenden Bldg.	2714	txs10
PHE Minor	Prof. Gray	Emerson Gymnasium	2863	nmg
PHI BA	Prof. Kim	208 Guilford House	2810	cxk6
PHY BA/BS	Prof. Fickinger	202 Rockefeller	4100	wjf
POL BS	Prof. Hudson	337 Kent Hale Smith	6373	sdh6
POS BA	Prof. McHale	113 Mather House	2424	vem
PPY Minor-Fall	Prof. Wyszomirski	218 Mather House	1637	mjlw15
PPY Minor-Spring	Prof. McHale	111 Mather House	2425	vem
PSY BA	Prof. Greene	124 Mather Memorial	6473	rlg2
RLG BA	Prof. Epp	112 Mather House	2221	eje
RUS Minor	Prof. Benseler	204 Guilford House	3071	dpb5
SOC BA	Prof. Deimling	223C Mather Memorial	5173	gtd
SOC BA	Prof. Hinze	223D Mather Memorial	8847	sxh3
SPA BA	Prof. Zubizarreta	214 Guilford House	2230	afz
STA BA/BS	Prof. J. Sedranski	332 Yost Hall	6941	jxs123
THR Drama	Prof. Albers	Eldred Theater	5926	cla2
THR Dance	Prof. Karipides	Mather Dance Center	2854	kxk8
UGS BA/BS	Undergraduate Studies	Baker 102	2928	mrx5
WMN Minor	Prof. Carvajal	203 Guilford House	2220	csc3

## COLLEGE OF ARTS AND SCIENCES

John E. Bassett, Dean  
7070 Crawford Hall, Ext. 4413  
E-mail: jeb20@po.cwru.edu

### Degrees and Degree Requirements

#### **Bachelor of Arts (B.A.) Degree - College of Arts and Sciences**

The University offers programs in Arts, Humanities, Mathematics, Natural Sciences, Social and Behavioral Sciences, Nutrition, and Statistics, leading to the B.A. degree from the College of Arts and Sciences. Candidates for the Bachelor of Arts degree, in addition to meeting the general requirements for bachelor's degrees as described on page 4, must also complete the following requirements:

1. A minimum of 120 semester hours earned. No more than 42 hours beyond the 100 level in any one department may be applied to the 120 hours total.
2. The General Education Requirements of the College of Arts and Sciences.
3. A minimum of 30 semester hours of courses at the 300-400 level.
4. The requirements for a major as specified in this handbook. A major concentration requires a minimum of 30 semester hours, at least 24 of which are taken in the major department. For all courses taken in the major department and for which grades are averaged, and for all courses taken to satisfy major requirements and for which grades are averaged, a B.A. candidate must earn a minimum cumulative average of 2.0. Major requirements include all required and elective work completed in the major department combined with required courses completed in related fields. Transfer students must complete at Case Western Reserve University at least half the hours required for the major.

#### **Bachelor of Science (B.S.) Degree - College of Arts and Sciences**

The Bachelor of Science degree based on the Arts and Sciences General Education Requirements is awarded in the following areas: Art Education, Applied Mathematics, Astronomy, Biochemistry, Biology, Chemistry, Geological Sciences, Mathematics, Music Education, Nutrition, Nutritional Biochemistry and Metabolism, Physics, and Statistics. Candidates for the Bachelor of Science degrees, in addition to meeting the general requirements for bachelor's degrees as described on page 4, must also complete the following requirements:

1. A minimum of 120-131 hours as specified by the requirements for each B.S. program.
2. A minimum of 30 semester hours of courses at 300-400 level.
3. The Arts and Sciences General Education Requirements. For some B.S. programs, the Arts and Sciences General Education Requirements have been modified and incorporated into the degree requirements as presented in this handbook.
4. The requirements for a major field as presented in this handbook in the section devoted to each program. For all courses taken in the major department and for which grades are averaged, a candidate for a B.S. from the College of Arts and Sciences must earn a minimum cumulative average of 2.0. Major requirements include all required and elective work completed in the major department combined with required courses completed in related fields. Transfer students must complete at Case Western Reserve University at least half the hours required by major.

## Arts and Sciences General Education Requirements

General Education Requirements of the College of Arts and Sciences provide a broad educational foundation for programs in humanities and arts, social and behavioral sciences, and mathematics and natural sciences, leading to the Bachelor of Arts or the Bachelor of Science degree. The areas in which courses are required are indicated below. This information is subject to addition. An updated list is published annually in the Handbook for Undergraduate Students.

### The following regulations govern the choice of courses to fulfill Arts and Sciences General Education Requirements:

- No more than nine hours from any one department may be used for the satisfaction of the Arts and Sciences General Education Requirements.
- No single course may fulfill more than one of the Arts and Sciences General Education Requirements.
- Students completing more than one major, or completing a major and one or more minors, classified under different general headings (natural sciences and mathematics, arts and humanities, social sciences) are exempt from a maximum of six semester hours of arts and sciences general education requirements. Specifically, students who complete two majors are exempt from six hours of general education requirements in the area of one of the majors or from three hours of general education requirements in each of the areas of the two majors. Students completing a minor are exempted from six hours of general education requirements in the area of the minor.
- In some areas students must complete an approved two-course sequence. Courses that are approved to serve as the first course in a sequence are shown in boldface. Courses that can serve for completion of a sequence in the same department follow each such course in parentheses.

**1. The English Composition Requirement** (3 semester hours) ENGL 150. To be completed by the end of the first year with a grade of C or higher. Students having transfer credit for an English composition course taken at a US college/university and passed with a C or better must pass an English Placement Test administered by the Department of English or earn a grade of C or higher in ENGL 180, a one-credit writing tutorial.

**2. Natural and Mathematical Sciences** (12 semester hours total) Students must complete at least three semester hours in area a) Mathematical Reasoning and Analysis, three semester hours in area b) Natural Sciences, and an additional course making an approved sequence in area a) or area b). An additional course taken to fulfill the 12 hour requirement may come from area a), b), or c) Science and Society.

a) *Mathematical Reasoning and Analysis* (3 semester hours minimum): courses in which students engage in step-by-step reasoning and computation using mathematical methods for discovery and for solving problems.

**MATH 121 or 123 or 125** (Each of these courses will usually be followed by a course identified as Part II to constitute a sequence. However, students not wishing to continue into a Part II course may complete a sequence through the use of any of the statistics courses listed below, or PHIL 201, or CMPS 131).

**MATH 150** (ANTH 319\*, CMPS 131, PHIL 201, PSCL 282\*, STAT 201\*)

**STAT 201\* or ANTH 319\* or PSCL 282\*** (any of the above mathematics courses, or CMPS 131, or PHIL 201, or PSCL 375) \*A student completing successfully any one of these three courses is not eligible to enroll in or receive credit for either of the other two.

**PHIL 201** (any of the above mathematics courses, or CMPS 131, or any of the above statistics courses)

- b) *Natural Sciences* (3 semester hours minimum): courses that survey the identification, description, experimental investigation, and theoretical examination of physical or biological phenomena.  
**ANTH 105** (295, 301, 369, 393, 395)  
**ASTR 201 or 202 or 221** (second course from those listed here or ASTR 222)  
**BIOL 110** (BIOL 101 or 147 or 220)  
**CHEM 105** (CHEM 106)  
**GEOL 101 or 110 or 115 or 117** (second course from those listed here or GEOL 210 or 220)  
**PHYS 115** (116) **or 121** (122) **or 123** (124)  
**PHYS 100**

- c) *Science and Society* (0 - 3 semester hours): courses that broadly examine the social cultural aspects or implications of science and/or technology.  
 ANTH 215, 317, 337, 363; BIOL 103, 328; ESCI 340; GEOL 114, 202; HSTY 151, 152, 201, 202, 395; PHYS/POSC 196; RLGN 206

**3. *Arts and Humanities*** (12 semester hours total) Students must complete at least three semester hours in each of the areas below, and an additional three-hour course making an approved sequence in one of the areas.

- a) *The Arts* (3 semester hours minimum): courses which serve as an introduction to art, music, and theater.  
**ARTH 100 or 200 level** (Any other 100 or 200 level ARTH course)  
**MUSC 221** (MUSC 222)  
**THTR 123** (THTR 124)

- b) *History, Philosophy, and Religion* (3 semester hours minimum): courses that cover historical change, philosophical or religious ideas and works, and the methods and concepts of these disciplines.  
**AMST 107** (AMST 108)  
**CLSC 111** (CLSC 112, 202B, 302)  
**CLSC 112** (CLSC 304)  
**CLSC 201** (CLSC 302, 304)  
**HSTY 112 or 113** (HSTY 112 or 113, 125, 131, 135, 151, 152, 200, 204, 210, 211, 212, 221, 222, 223, 253, 255, 256, 257, 258, 260, 261, 262, 264, 265, 266, 268, 272, 281, 282, 285, 348)  
**PHIL 101** (PHIL 204, 302, 305, 330, 334, 345, 370)  
**RLGN 102 or 120 or 201 or 202 or 203 or 204 or 207 or 223 or 254** (any of those listed or RLGN 206, 217, 231, 300, 301, 303, 306, 309, 314, 332, 341)

- c) *Literature and Language* (3 semester hours minimum): language courses beyond the first year level, and courses that serve as an introduction to important literary works and to the methods and concepts of literary study.  
**CLSC 203 or 204** (CLSC 203 or 204, 314; Greek 200-level or above, except 395; Latin 200-level or above, except 395)  
**CMPL 211 or 212** (the other of these two)  
**ENGL 200** (255 or 256)  
**LITR 290 or 291** (the other of these two)  
**Foreign Languages - any 200 or higher level course in a foreign language** (any other 200 or higher level course in the same language)

**4. Social Sciences** (9 semester hours) Students must complete three semester hours in each area listed below, and an additional three-hour course making an approved sequence in one of the areas. No more than six hours may be taken in a single department for this requirement.

a) *Social Institutions* (3 semester hours minimum): courses that introduce students to the methods and concepts in the social sciences relevant to the understanding of organizational or societal functioning.

**ANTH 102 or 103 or 107** (either of the remaining two)

**ECON 102 or 103 or 205** (either of the remaining two)

**MUSC 241** (for music education majors only)

**POSC 109 or 260** (POSC 308, 310, 320E, 321, 325, 327, 328, 360B, 367, 370J, 386)

**SOCI 113** (SOCI 204, 249, 300, 302, 312, 355A)

b) *Human Behavior and Development*: (3 semester hours minimum): courses that introduce students to the methods and concepts in the social sciences relevant to understanding individual or family functioning:

**ANTH 104** (ANTH 304, 306, 309, 318, 340, 342, 345, 371, 375, 386)

**COSI 100** (COSI 103, 220, 236, 332, 336)

**COSI 109** (COSI 103, 211, 220, 313, 345)

**PSCL 101** (PSCL 102, 230, 313, 315, 321, 352, 353, 355, 357)

**SOCI 112 or 310** (SOCI 203, 222, 308, 361)

**5. Global and Cultural Diversity** (3 semester hours) From approved courses designed to develop students' awareness of their cultural assumptions and to expand their understanding of cultural issues, students must complete a three-hour course which focuses on a culture outside the United States and Europe or on ethnic or cultural differences and/or interactions within or outside the United States.

ANTH 314, 352, 353, 356, 357;

CMPL 230;

COSI 260;

ECON 335, 375;

ENGL 363H, 365E, 365N, 365Q, 366G;

FRCH 375;

HSTY 113, 131, 135, 258, 260, 261, 262, 268, 281, 282, 285;

PHIL 356; POSC 360D, 360E, 366, 370K, 374, 379;

RLGN 120, 204, 217, 223, 254, 303, 314;

SOCI 302;

SPAN 303;

any 200 or 300 level course in Chinese, Japanese, or Russian.

## Undergraduate Programs of The College of Arts And Sciences

*All major programs described in this section require completion of the Arts and Sciences General Education Requirements (see page 12). Students who matriculated prior to fall, 1997 may complete degree programs in arts and sciences as described in this handbook, or may complete degree programs as prescribed by the handbook published in the year in which they matriculated.*

### ACCOUNTING (ACC)

Major and minor programs in accounting are offered through the Weatherhead School of Management. See page 69.

### AMERICAN STUDIES (AMS)

Academic Representative and Program Director:  
Professor Park Goist  
218 Guilford House, Ext. 4117  
E-mail: pdg@po.cwru.edu

#### Major (for B.A.)

Hours: 39  
(12 AMST minimum)

- A. AMST 107, 108, 310, 391
- B. HSTY 112 or an approved alternative
- C. 12 hours in each of two areas of concentration. An area of concentration consists of courses taken in a single department and/or courses from more than one department that address a theme or issue (ethnic diversity, urban culture, women's studies, etc.). The work taken to satisfy this requirement must be selected in consultation with the Program Director.

*Note: No more than one course being used to satisfy the requirement (C) for the two areas of concentration may apply simultaneously toward the completion of a minor concentration.*

#### Minor

Hours: 15

Five courses (15 hours), including AMST 107 and 108, that constitute a coherent approach to a significant period, problem, or aspect of American civilization. Minors must be approved by the Program Director.

#### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

AMST 107 and 108 plus two additional courses selected in consultation with the Program Director.

#### Independent Study

AMST 380, 390

## ANTHROPOLOGY (ANT)

### Academic Representatives:

Professor Cynthia Beall  
217 Mather Memorial, Ext. 2277  
E-mail: cmb2@po.cwru.edu

Professor Jill Korbin  
210 Mather Memorial, Ext. 2278  
E-Mail: jek7@po.cwru.edu

### Concentrations for the major (for B.A.)

Hours: 36

#### A. Liberal Arts Anthropology

- 1) ANTH 102, 103
- 2) ANTH 319 (or equivalent)
- 3) At least one course covering a geographic area, such as ANTH 330, 331, 332, 333, 336, 341, 352, 353, 356
- 4) Approved Anthropology electives: 24 hours

#### B. Health Science Oriented Anthropology

- 1) ANTH 102, 103, 215
- 2) ANTH 319 (or equivalent)
- 3) At least one course dealing with a geographic area, such as ANTH 330, 331, 332, 333, 336, 341, 352, 353, 356
- 4) At least three courses dealing with health-related topics: ANTH 216, 301, 304, 305, 306, 309, 318, 346, 351, 358, 359, 365, 369, 371, 373, 375, 376, 383, 384, 386, 393, 395, 396, 397
- 5) Approved Anthropology electives: 12 hours

### Concentrations for the minor

Hours: 18

#### A. General Anthropology

- 1) ANTH 102 and 103
- 2) One Anthropology geographic area course
- 3) Three approved electives (9 hours)

#### B. Health Science Oriented Anthropology

- 1) ANTH 102 and 103
- 2) One Anthropology geographic area course
- 3) Three courses dealing with health-related topics

### Social Science Sequence (for B.S. based on Case Core)

Hours: 12

ANTH 102 or 103

Three other courses, at least one of which must be 300-level

### Independent Study:

ANTH 399

## ART EDUCATION (ARE), ART STUDIO (ARS) AND PRE-ARCHITECTURE (PAR)

Academic Representative:  
Professor Timothy Shuckerow  
115 Wickenden, Ext. 2714

### ART EDUCATION (ARE) (B.S.)

Hours: 123

*(based on modified Arts and Sciences General Education Requirements)*

The Bachelor of Science program in Art Education is conducted jointly by Case Western Reserve University and The Cleveland Institute of Art. Admission to the program requires application to CWRU and presentation of an art portfolio to the Institute. Credentials must be acceptable to both institutions. Usually, academic work is taken at CWRU and studio work is taken at the Institute. To enter student teaching a 2.5 cumulative grade point average and a total of 300 contact hours of clinical field-based experience are required. To complete teacher training program successfully a 3.0 grade point average must be maintained in professional education courses and an overall grade point average of 2.5 is required. In addition to these, the State of Ohio requires passing scores on the General Knowledge, Professional Knowledge and Art Specialist Sections of the National Teacher Examination. Upon satisfactory completion of both University and State requirements the student is recommended by the University Director of Teacher Certification for the Ohio Provisional Visual Arts Specialist (K-12) Certificate to teach art in the public schools in Ohio and reciprocating states. **Completion of the B.S. in Art Education degree exists separately from the assurance that the State of Ohio's Provisional Visual Arts Specialist Teacher Certification will be awarded.**

### Academic courses at CWRU (\* indicates courses fulfilling Arts and Sciences General Education Requirements)

	<u>Hours</u>
*ENGL 150	3.0
PHED (two semesters - Lifetime Sports Activities)	0.0
*A&S General Education Requirement: Mathematics	3.0
*A&S General Education Requirement: Natural Sciences	3.0
*A&S General Education Requirement: Natural Sciences <i>or</i> Science and Society	3.0
*Art History 101, 102	6.0
*A&S General Education Requirement: History, Philosophy, Religion	6.0
*PSCL 101, EDUC 304	6.0
ARTS 295, 300, 385, 386, 387, 393, 366A, 366B, 465	24.0
*EDUC 301	3.0
ARTH electives (one must be at 300 level)	6.0
ENGL elective (300 level)	3.0
*A&S General Education Requirement: Global and Cultural Diversity	3.0
One open elective (300 level)	3.0

### Art Studio courses at The Cleveland Institute of Art

Computer Basics 101, 201	3.0
Design 107, 108, 209	9.0
Drawing 117, 118, 217	9.0
Painting 121, 122, 210	9.0
Sculpture 227	3.0
Five Studio electives at 3 hours each	15.0
CIA Open Elective	3.0

## ART STUDIO (ARS)

Concentration for the minor Hours: 18

*(cannot substitute for the Humanities Sequence requirement for the Case Core)*

A. Art Studio (ARTS): 18 hours in Art Studio, including ARTS 101 and 106

At least two of the remaining courses should be in one area (i.e. drawing, painting, design, ceramics, etc.)

B. Photography (ARTS): 18 hours including ARTS 220, 320, 322, 325, 365, and either 399 or ARTH 102

Humanities Sequence (for B.S. based on Case Core) Hours: 15

A. Art Studio (ARTS): 15 hours in Art Studio/Art History

ARTH 101, 102 or two approved Art History electives

ARTS 101, 106 and one Art Studio elective

B. Photography (ARTH/ARTS): 15 hours

ARTH 101, 102 or two approved Art History electives

Three courses chosen from: ARTS 220, 320, 322, 325, 365, 399

## PRE-ARCHITECTURE (PAR)

Academic Representative:

Professor Timothy Shuckerow

115 Wickenden, Ext. 2714

Major (for B.A.) Hours: 30-39

1. Art History: 12 hours including ARTH 101, 102

2. Art Studio: 15 hours including ARTS 106, 302, 303

3. One approved 3 hour elective course selected from American Studies, Anthropology, Civil Engineering, Geological Sciences, History of Technology and Science, or Sociology in consultation with the major adviser

**NOTE:** Students who plan to pursue graduate studies in architecture may replace No. 3 above with 12 hours selected from MATH 125, 126 and PHYS 115, 116 or 121, 122. The 12 hours must include at least one course each in mathematics and physics.

**The Pre-Architecture major is available only as a second major for the B.A.**

Concentration for the minor Hours: 18

ARTH 101, 102; ARTS 106, 302, 303 and one approved elective

Humanities Sequence (for B.S. based on Case Core) Hours: 15

ARTH 101, 102, ARTS 106, 302, 303

## ART HISTORY (ARH)

Academic Representative:  
Professor Edward J. Olszewski  
319 Mather House, Ext. 2347  
E-mail: [ejo@po.cwru.edu](mailto:ejo@po.cwru.edu)

### Major (for B.A.)

- A. Art History (ARTH) Hours: 36
1. ARTH: 30-33 hours including
    - a) ARTH 101, 102 (6 hours)
    - b) Six hours at 200 level recommended before the senior year
    - c) ARTH 396 Majors Seminar (3 hours) recommended for the junior year
    - d) 15-18 hours of electives in ARTH at the 300 level
  2. ARTS: 3-6 hours of ARTS courses selected in consultation with the adviser.
  3. Two years of a foreign language (preferably German) recommended for those who intend to pursue professional interests in art history

Art Conservation Option: Students desiring to prepare for entry into a graduate program in art conservation should supplement the major concentration in ARTH with the following:

1. 18 hours chemistry including CHEM 105, 106
2. 8 hours physics: PHYS 115, 116
3. 3 hours materials or polymer sciences: EMSE 101 or EMAC 176 or EMAC 270
4. 12 additional hours of approved ARTS, including ARTS 101, 102, 220
5. Study in German up to and including GERM 202
6. Three to six hours of internship: ARTH 398 or CHEM 397 or EMSE 398 (in place of 3 hours of ARTH 396)

### Concentration for the minor

Hours: 18

18 hours of Art History including ARTH 101, 102

### Humanities Sequence (for B.S. based on Case Core)

12 hours of Art History including ARTH 101, 102

## ARTIFICIAL INTELLIGENCE (AIN)

Academic Representative:  
Professor George W. Ernst  
508 Olin Building, Ext. 2839  
E-mail: [ernst@alpha.ces.cwru.edu](mailto:ernst@alpha.ces.cwru.edu)

### Minor

Hours: 15

A. CMPS 131, 391 followed by completion of one of the tracks described below.

B. Track 1 - Technology Track

Three courses selected from the following: BIOL 373, 374, BIOL/CMPS 478, BIOL/ECMP 375, 475, CMPS 411, ECMP/EEAP 484, 491, 591, EEAP 485, 489, 531, 589, EIND 352, 450, PHIL 201, 306

Track 2 - Cognitive Science Track

Three courses selected from the following: BIOL 373, 374, BIOL/CMPS 478, 479, ENGL 301, PHIL 201, 306, PSCL 101, 352, 353, 355, 357, 370, 402

## ARTIFICIAL INTELLIGENCE (continued)

Humanities or Social Science Sequence\* Hours: 18

(for B.S. based on Case Core)

A. CMPS 131, 391

B. Four courses from the following: ENGL 301, PHIL 201, 306, PSCL 101, 352, 353, 355, 357, 370, 402

\* *will be identified by the adviser as a humanities or social science sequence on the basis of the courses taken*

## ASIAN STUDIES (ASI)

Academic Representative:

Professor William Deal

217 Mather House, Ext. 2205

E-mail: wed@po.cwru.edu

Major (for B.A.) Hours: 34

A. ASIA 110

B. At least 16 hours in an Asian language

C. The remaining 15 hours selected in consultation with program adviser.

Minor Hours: 18

ASIA 110 and 15 additional hours selected in consultation with adviser

Only one year (6-8 credits) of language study (Japanese or Chinese) counts toward the minor.

Humanities Sequence (for B.S. based on Case Core) Hours: 12

ASIA 110 and 9 additional hours selected in consultation with adviser

## ASTRONOMY (AST)

Academic Representative:

Professor R. Earle Luck

414 A. W. Smith Bldg., Ext. 6697

E-mail: luck@grendel.astr.cwru.edu

Major (for B.A.) Hours: 63  
(17 ASTR)

A. Core Astronomy courses

ASTR 221, 222, 306, 309, 310, 321, 322

B. Additional required courses:

MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228)

PHYS 121 (or 123), 122 (or 124), 221 (or 223), 250, 310, 313, 324, 326, 331

STAT 313

Major (for B.S.) Hours required for graduation: 125

A. Core Astronomy courses (20 hours)

ASTR 221, 222, 306, 309, 310, 321, 322, 327

B. Additional required courses:

MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228)

PHYS 121 (or 123), 122 (or 124), 203, 221 (or 223), 204, 250, 310, 313, 324, 326, 325, 331, 332

STAT 313

## ASTRONOMY (continued)

### Concentrations for the minor

Hours: 15-22

- A. For non-physical science majors:  
ASTR 221, 222, MATH 125, 126, PHYS 115, 116 (22 hours)
- B. For physical science majors:  
ASTR 221, 222, 306, 321, 322 (15 hours)

## BIOCHEMISTRY (BCH)

Academic Representatives:  
Professor Jerry A. Harpst, Chair  
W463 Medical School, Ext. 3336  
E-mail: jah8@po.cwru.edu

Cooperative Education Adviser:  
Professor Pieter deHaseth  
W477 Medical School, Ext. 3684  
E-mail: pld2@po.cwru.edu

### Major (for B.A.)

Hours: 67  
(19 BIOC)

- A. Biochemistry courses (19 hours)  
BIOC 307, 308, 371, 372  
BIOC elective (312, 334, or approved equivalent)  
2 other approved biochemistry electives (6 hours)
- B. Additional required courses
- 1) BIOL 110, 210, 211, 326
  - 2) CHEM 105, 106, 113; 223, 224, (or 323, 324), 233, 234, 301
  - 3) MATH 125, 126 (or 121, 122)
  - 4) PHYS 115, 116 (or 121, 122), including laboratory

### Major (for B.S.)

Hours required for graduation: 129-130

- A. Biochemistry courses (19 hours)  
BIOC 307, 308, 312, 334, 371, 372  
1 other approved biochemistry elective (3 hours)
- B. Additional required courses:
- 1) BIOL 110, 210, 211, 326
  - 2) CHEM 105, 106, 113, 223, 224 (or 323, 324), 301, 302 (or 335, 336), 321, 322 (or 233, 234, and 304)
  - 3) CMPS 131
  - 4) MATH 121, 122, 223, 224 (or 123, 124, 227, 228)
  - 5) PHYS 121, 122 (or 123, 124), including laboratory, 221 (or 223)
  - 6) Statistics/data analysis elective (PHYS 250, ECMP 251, STAT 312, 313 or equivalent)

### Minor

Hours: 43

- A. Biochemistry courses (11 hours)  
BIOC 307, 308, and either BIOC 312 or 334
- B. Required courses in Biology, Chemistry, and Mathematics include:
- 1) BIOL 110, 210
  - 2) CHEM 105, 106 (or 107, 108), 113, 223, 224 (or 323, 324), 233, 234
  - 3) MATH 125, 126 (or 121, 122)

### Independent Study:

BIOC 391 (**Can only be taken on a Pass/No Pass basis.**)

### Cooperative Education

Optimal times: Third Year - Spring/Summer  
Fourth Year - Summer Fifth Year - Fall

## BIOLOGY (BIO)

Academic Representative:  
Dr. Martin J. Rosenberg  
103 Biology Bldg. or  
101SC Millis Science Center, Ext. 3558  
E-mail: mjr4@po.cwru.edu

Cooperative Education Adviser:  
Professor Morris Burke  
108A Biology Bldg., Ext. 6652  
E-mail: mxbl8@po.cwru.edu

### Major (for B.A.)

Hours: 62  
(30 BIOL)

- A. Biology courses (30 hours)
1. Core courses: BIOL 110, 205, 210, 220, 310
  2. Four laboratory courses chosen as follows:
    - a. any two of BIOL 111, 211, 221
    - b. any 300 level or higher BIOL lab (except 346, 388, 390)
    - c. any other BIOL lab (except 346, 388, 390)NOTE: The combination of BIOL 305 and BIOL 335 fulfills one 300-level lab requirement.
  3. Biology electives: 6-9 hours - at least 6 must be 300 level or above
- B. Additional required courses (32 hours)
1. Chemistry: CHEM 105, 106, 113, 223 (or 323), 224 (or 324), 233
  2. Calculus: MATH 125, 126 (or 121, 122)
  3. Physics: PHYS 115, 116 or equivalent

### Major (for B.S.)

Hours required for graduation: 120

- A. Biology courses (39 hours)
1. Core courses: BIOL 110, 205, 210, 220, 310
  2. Five laboratory courses chosen as follows:
    - a. BIOL 211, 221, 315
    - b. Two additional 300 level labs (except 346, 388, 390)
  3. BIOL 301 or 326
  4. Undergraduate Research—BIOL 388, 390 and 395
  5. Biology elective: one 300 level or higher lecture course in Biology.
- B. Additional required courses:  
CHEM 105, 106, 113  
CHEM 223, 224, and 233 (or CHEM 323, 324, and 233) and CHEM 301  
CMPS 131  
MATH 125, 126 (or 121, 122, but 125, 126 preferred)  
MATH 201 or 225 or an approved statistics course  
PHYS 115, 116

### For Teacher Certification in Biology grades 7-12 the requirements are:

1. Completion of the major in Biology for the B.A.:  
BIOL 110, 111, 117 (or 305 or 339 or 358), 205, 210, 211, 220, 221, 308, 310, 311, 326, 313, 330, 223, 343, 344, 301, 336;  
CHEM 105, 106, 113, 223, 224, 233;  
MATH 125, 126;  
PHYS 115, 116;  
CMPS 131
2. Completion of the minor in education (see EDUC listing on page 27).
3. Successful passing of required sections of the National Teachers Examination.

**NOTE:** For information about teacher certification programs see Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714

## **BIOLOGY (continued)**

### Minor

Hours: 16

BIOL 110, 111, and 11 additional hours of biology, 6 must be 200 level or above

### Independent Study

BIOL 388, 389, 390 (**BIOL 390 can only be taken on a Pass/No Pass basis**)

### Cooperative Education

Optimal Time: Third Year - Spring/Summer Fourth Year - Fall

## **CHEMISTRY (CHE)**

Academic Representative and Cooperative Education Adviser:

Professor John E. Stuehr

106SB Millis Science Center, Ext. 5099

E-mail: jes6@po.cwru.edu

### Major (for B.A.)

Hours: 46-48

- A. Chemistry courses required (30-32 hours):  
CHEM 105, 106, 113;  
CHEM 223, 224 (or 323, 324), 233, 234 (or 321, 322);  
CHEM 301, 302 (or 335, 336), 304, 305
- B. Additional required courses (16 hours):  
PHYS 115, 116;  
MATH 125, 126 (or 121, 122)

### Major (for B.S.)

Hours required for graduation: 120

- A. Chemistry courses required (46 hours):  
CHEM 105, 106, 113;  
CHEM 321, 322, 323, 324;  
CHEM 311, 335, 336, 330, 331;  
CHEM 332 plus nine additional hours of chemistry electives at the 300 level or above; the latter may include no more than 3 credit hours of CHEM 397 (Undergraduate Research).
- B. Additional required courses (37 hours):  
MATH 121 (or 123), 122 (or 124), 223 (or 227)  
MATH 224 (or 228) or STAT 312  
PHYS 121, 122, 221  
CMPS 131  
Nine additional hours of approved technical electives, which may include additional CHEM 397 credits, but only 9 credit hours total of CHEM 397 can be applied towards the hours required for the degree.

### For Teacher Certification in Chemistry - grades 7-12

1. Completion of B.A. major in chemistry as described plus 6 additional hours of approved elective work in chemistry and 3 additional hours of approved elective work that may be taken in any of the natural sciences
2. Completion of minor in education (see EDUC listing on page 27).
3. Successful passing of required sections of the National Teachers Examination.

**NOTE:** For information about teacher certification programs see Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714.

## **CHEMISTRY (continued)**

### Minor

Hours: 18

CHEM 105, 106, CHEM 113, plus six additional hours of lecture courses in chemistry (usually CHEM 223, 224 or CHEM 323, 324) and two additional lab courses (usually CHEM 233 and 234)

Independent Study: CHEM 397

### Cooperative Education

Optimal Time: Third Year - Summer; Fourth Year - Fall, Spring/Summer

## **CHINESE (CHI)**

Academic Representative:

Professor David P. Benseler

204 Guilford, Ext. 3071

E-mail: dpb5@po.cwru.edu

### Minor

Hours: 15-19

- A. For students beginning study in Chinese at an introductory level:  
CHIN 101, 102, 201, 202 and one 300-level course (19 hours)
- B. For students beginning study in Chinese at the 200 level or higher:  
Five courses at the 200 and 300 levels approved by the chair of the department.

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12-16

- A. For students beginning study in Chinese at an introductory level:  
CHIN 101, 102, 201, 202
- B. For students beginning study in Chinese at the 200 level or higher:  
A minimum of 12 hours of advanced courses

## **CLASSICS (CLS)**

Academic Representative:

Professor Donald R. Laing, Jr.

402 Mather House, Ext. 6026

E-mail: drl2@po.cwru.edu

### Major (for B.A.)

Hours: 36

Courses from Classics Department (36 hours)

1. Eight courses (24 hours) in either Greek or Latin or combination of both, provided that at least three courses are included from the most advanced level in one of the languages
2. Four Classics courses of which at least two must be at the 300 level

The department strongly recommends the addition of four to six courses in a closely related field to be selected in consultation with the department adviser. Examples of related fields are Anthropology, Art History, Comparative Literature, History, English, Philosophy.

## CLASSICS (continued)

### Concentrations for the minor

Hours: 15-18

#### A. Latin concentration:

9 hours from Latin courses at the 300 level

6 hours from: CLSC 112, 201, 304

#### B. Greek concentration:

12 hours in Greek language

3 hours from: CLSC 111, 201, 228, 301, 302

#### C. Classics concentration: consult department adviser

1. Any two Latin or any two Greek courses

2. CLSC 111 or 112 or 201 or 202

3. Three courses from CLSC 301, 302, 304, 314, and 300-level courses in Greek and Roman art

**NOTE:** *With the approval of the Chairman, any of the above programs may be adapted to meet the needs of the individual student.*

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

Most sequences should include CLSC 111, 112 and two courses in one of either Greek or Roman culture. Four courses in either classical language will be acceptable as a sequence in humanities. Students should consult with the adviser on the development of an acceptable sequence.

Sample with Emphasis on Greece: CLSC 111, 112, 203, 302

Sample with Emphasis on Rome: CLSC 111, 112, 204, 304

Language samples: GREK 101, 102, 201, 202; LATN 201, 202, 308, 380

### Independent Study

CLSC 381 (majors only)

CLSC 395; GREK 395; LATN 395

## COMMUNICATION SCIENCES (COS)

Academic Representative:

Professor Kathy Chapman

412 Hearing and Speech, Ext. 2470

E-mail: kxc5@po.cwru.edu

### Concentrations for the major (for B.A.)

#### A. Communication Studies

Hours: 33

COSI 100, 103, 109, 211, 236, 260, 313, 336, 345 and two of the following:

COSI 220, 228, 332

#### B. Communication Disorders

Hours: 36

COSI 109, 211, 220, 260, 313, 321, 325, 345, 352, 370 and PSCL 101, 230

### Concentrations for the minor

Hours: 15

#### A. Communication Studies: COSI 100, 103, 236, 336 and one of the following:

COSI 109, 332, 345, 220

#### B. Communication Disorders: COSI 109, 211, 313, 345, and one of the following: COSI 103 or 220

### Social Science Sequence (for B.S. based on Case Core)

Hours: 12

#### A. Communication Studies: COSI 100, 103, 236, 336

#### B. Communication Disorders: COSI 109, 211, 313, 345

## COMPARATIVE LITERATURE (CLT)

Academic Representative:  
Professor David P. Benseler  
204 Guilford House, Ext. 3071  
E-mail: dpb5@po.cwru.edu

### Major (for B.A.)

Hours: 34

- A. Either CMPL 211-212 or ENGL 255-256 or LITR 290-291; 202 or the equivalent in a modern language taught at CWRU
- B. 24 hours of literature electives at least 21 of which should be at the 300 level or above, including four 300-level courses in French, German or Spanish

### Minor

Hours: 15

Five 200 and 300 level courses in CMPL or LITR, including at least one of the following sequences: CMPL 211-212, ENGL 255-256, LITR 290-291

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

Two of the following sequences: CMPL 211-212, ENGL 255-256, LITR 290-291

## COMPUTER SCIENCE (CMP)

Academic Representative:  
Professor George W. Ernst  
508 Olin Building, Ext. 2839  
E-mail: ernst@alpha.ces.cwru.edu

### Major (for B.A. based on Arts and Sciences General Education Requirements)

Hours: 38

- A. CMPS 131
- B. MATH 125, 126, 304
- C. ECMP 251, 280, 333, 337, 338, EEAP 282
- D. CMPS 340, 341

In addition, a student must take two technical electives. These courses must be CMPS, ECMP, MATH or STAT courses.

For B.S. program in Computer Science, see page 26.

### Minor (for B.A.)

Hours: 15

CMPS 131  
MATH 125 (or equivalent)  
ECMP 251, EEAP 282 plus one additional 3 hour Computer Science or Computer Engineering course

## ECONOMICS (ECO)

Academic Representative and Sequence Adviser:

Professor William Peirce

400 Wickenden, Ext. 4131

E-mail: [wsp@po.cwru.edu](mailto:wsp@po.cwru.edu)

Major (for B.A. based on Arts and Sciences General Education Requirements) Hours: 30

- A. Required Courses Hours: 15
1. ECON 102, 103, 307, and either 308 or 309 (12 hours)
  2. STAT 201 or 207 or equivalent (3 hours)
- B. Electives (15 hours):
1. Minimum of four additional courses in economics at 200-level or 300-level (12 or more hours)
  2. One elective may be in a related field (such as ACCT, HSTY, MATH, PHIL) approved by the departmental adviser (3 hours)

Minor (for B.A. or B.S.) Hours: 15  
ECON 102, ECON 103 and an additional nine hours of ECON courses selected in consultation with the minor adviser

Social Science Sequence (for B.S. based on Case Core) Hours: 12  
ECON 102, 103 and two additional courses approved by the Sequence Adviser.

Honors Program Hours: 6  
Juniors with a minimum grade point average of 3.3 in economics courses and a 3.0 average overall after completion of ECON 307, 308 and an approved statistics course may apply to the honors program. Students admitted to the program will enroll in ECON 397 in the Spring semester of their junior year, and will enroll in ECON 398 in the Fall semester of their senior year, and will present an honors thesis in order to complete the program and qualify for departmental honors in Economics.

Independent Study  
ECON 399 Hours: 1-6

## EDUCATION (EDU)

Academic Representative:

Professor Timothy Shuckerow, Director of Teacher Certification

115 Wickenden Bldg., Ext. 2714

Minor (for B.A.) Hours: 29  
A minor in education is completed by those students who participate in the Case Western Reserve University/John Carroll University Joint Program in High School Certification. Teacher certification for grades 7 through 12 is available in biology, chemistry, earth science, English, French, history, mathematics, and physics. The minor consists of 29 credit hours in professional education, six of which are taken at Case Western Reserve University and the remainder at John Carroll University. (For teacher certification in art or music, see requirements for the B.S. in Art Education or Music Education.)

EDUC 301, 304 (taken at Case Western Reserve University; PSCL 101 must be taken as a prerequisite)  
EDJC 200, 327, 341, 386, 405, 444S, 462A, 462B (taken at John Carroll University)

## **ELECTRONICS (EAP)**

A minor in electronics is available to B.A. candidates through the Department of Electrical Engineering and Applied Physics. See page 60.

## **ENGLISH (EGL)**

Academic Representative:  
Professor Suzanne Ferguson  
215 Guilford House, Ext. 2217  
E-mail: scf@po.cwru.edu

### Major (for B.A.)

Hours: 30 above 100 level

ENGL 200, 380, and 24 additional hours in ENGL courses, at least 15 of which must be at the 300 level or higher. ENGL 255 and 256 are recommended for any student considering graduate study in English or Literature.

### For Teacher Certification in English - grades 7 - 12

1. Completion of the major concentration in English as described below:
  - ENGL 255 and 256 (6 hours)
  - One course selected from ENGL 202, 212, 303, 304, 317 (3 hours)
  - One course selected from ENGL 301, 366, 500 (3 hours)
  - ENGL 310 or an ENGL elective (3 hours)
  - English electives (15 hours): This work is to be selected in consultation with the adviser. Students will be counseled toward areas which the National Council of Teachers of English recommends; specifically, courses from the following groups:
    - World Literature: ENGL 257K, 363C, 365F, 365H
    - Dramatic Literature: ENGL 324, 325, 363C, 363P
    - Literature by and about Women: ENGL 353D, 365B, 365G, 366W
    - Film, TV, Ethnic and Young Adult Literature: ENGL 368A, 368C, 368N, 365H, 390
2. Completion of the minor in education (see EDUC listing on page 27).

**NOTE:** Students desiring information about programs leading to teacher certification in English should meet with both Professor Judith Oster, English Department, 320 Guilford House, Ext. 2367, E-mail: jxo4 and Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714.

### Minor (for B.A.)

Hours: 15 above 100 level

Consult department adviser. ENGL 200 strongly advised.

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

Any coherent sequence of four 200-300 level courses.  
Students must consult the departmental adviser.

### Independent Study

ENGL 390

**NOTE:** As of Spring semester 1998, a new system of course numbering, affecting 300-level courses in particular, will be in place in the Department of English.

## **ENVIRONMENTAL GEOLOGY (GNV)**

See Geological Sciences, page 31.

## ENVIRONMENTAL STUDIES (EST)

Academic Representatives:  
Professor Peter McCall  
A.W. Smith Building 211C, Ext. 3676  
E-mail: plm4@po.cwru.edu

### Major (for B.A.)

Hours: 30

1. ESTD 101 and ESTD 398
2. Humanities: RLGN 206 or HSTY 378
3. Social Policy: ECON 368 or GEOL 303
4. Science and Engineering: ESCI 340 or BIOL 350 or GEOL 201
5. 15 additional hours selected from a list of approved courses. An approved Washington Semester internship may be used to satisfy part or all of this requirement.

***The Environmental Studies major is available only as a second major for the B.A.***

### Minor

Hours: 15

1. ESTD 101
2. One course from each of two of the three disciplinary options listed for the major (see 2, 3, 4 above)
3. Three additional courses selected from the list of courses approved for the major; or one course selected from the remaining disciplinary option and two courses selected from the list of approved courses.

### Humanities/Social Science\* Sequence *(for B.S. based on the Case Core)*

Hours: 12

1. ESTD 101
2. One course from one of the disciplinary options listed for the major (see 2, 3, 4 above)
3. Two courses selected from the list of courses approved for the major or from the remaining disciplinary options.

***\* will be identified by the adviser as a humanities or social science sequence on the basis of the courses taken***

## FRENCH (FRC)

Academic Representative:  
Professor Marie-Pierre LeHir  
308 Guilford House, Ext. 2233  
E-mail: mx111@po.cwru.edu

### Major (for B.A.)

Hours: 30-32

#### **Students who begin the major at the 200-level:**

FRCH 201 and 202; six 300-level courses taught in French; two LITR or CMPL or other related courses as defined below.

#### **Students who begin the major at the 300-level:**

Eight 300-level courses taught in French; two LITR or CMPL courses or other related courses as defined below.

## **FRENCH (continued)**

Related courses are those outside the French offerings which are closely related to French culture: Art History, Classics, History, Philosophy, as well as other language and literature courses. Study abroad is highly recommended for all majors, as is additional work in comparative literature and/or in another language. Courses other than FRCH must be approved in advance by the major adviser.

### For Teacher Certification in French - grades K-12

1. Completion of the major concentration in French as described below:
  - a. FRCH 101, 102, 201, 202, 310 or 314, 311, 315 or 317, 316, 318, 319, 320
  - b. Four courses selected from 321, 331, 341, 351, 361, 371, 372, 373, 374, 375, 376, 377, 399
2. Completion of minor in education (see EDUC listing on page 27).

**NOTE:** *For information about teacher certification programs see Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714.*

### Minor

Hours: 15-19

#### **Students beginning study in French at introductory level:**

FRCH 101, 102, 201, 202 and one 300-level course (19 hours)

#### **Students beginning study in French at 200 level or higher:**

Five FRCH courses at the 200 or 300 level, as approved by the adviser (15 - 18 hours)

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12-16

- A. Students with no high school preparation in French:  
FRCH 101, 102, 201, 202
- B. Students with the equivalent of one year of college French:  
FRCH 201, 202, and two 300-level courses
- C. Students with the equivalent of two years of college French:  
Four 300-level courses.

## **FRENCH STUDIES (FRS)**

Academic Representative:

Professor Marie-Pierre LeHir  
308 Guilford House, Ext. 2233  
E-mail: mx111@po.cwru.edu

### Major (for B.A.)

Hours: 33

Three courses in Foundations in French History and Culture (FRCH 316, 318 and FRCH 319 or HSTY 330); two French Area Focus courses from FRCH 300-level offerings; five courses in other disciplines from the list of French Studies courses; French Studies Colloquium. Each individual program is supervised by a faculty adviser and must receive formal approval.

### Minor:

Hours: 15

One of FRCH 316, 318, 319, HSTY 330; four additional 300-level courses on the list of French Studies courses from any two departments or a thematic course of study approved in advance.

## **GEOLOGICAL SCIENCES (GEO) AND ENVIRONMENTAL GEOLOGY (GNV)**

Academic Representatives:  
Professor Philip O. Banks  
212 Smith Bldg., Ext. 3765  
E-mail: pob@po.cwru.edu

Professor Peter L. McCall  
211C Smith Bldg., Ext. 3676  
E-mail: plm4@po.cwru.edu

### Major in Geological Sciences (for B.A.)

Hours: 64 (40 GEOL)

- A. Core GEOL courses (31 hours)  
Any one of GEOL 101, 110, 114, 115; plus GEOL 119, 210, 215, 301, 315, 317, 341, 344, and 360
- B. Elective courses (9 hours). Three additional GEOL courses, at least two of which must be 200-level or higher, approved by department adviser.
- C. Other courses required (24 hours)  
Chemistry: CHEM 105, 106, 113  
Mathematics: MATH 125, 126 (or 121, 122)  
Physics: PHYS 115, 116 or equivalent

### Major in Environmental Geology (for B.A.)

Hours: 60 (25 GEOL)

- A. Core GEOL courses (25 hours)  
GEOL 110, 114, 119, 210, 220, 303 or 202, 305, 317, 322
- B. Elective courses (9 hours). Three additional courses relating to the science or societal implications of environmental concerns, approved by department adviser.
- C. Other courses required (26 hours)  
Chemistry: CHEM 105, 106, 113  
Mathematics: MATH 125, 126 (or 121, 122)  
Physics: PHYS 115  
Biology: BIOL 110  
Statistics: STAT 201

### Major in Geological Sciences (for B.S.)

Hours required for graduation: 133

- A. Core GEOL courses (31 hours)  
Any one of GEOL 101, 110, 114, 115; plus 119, 210, 215, 301, 315, 317, 341, 344 and 360
- B. Technical elective courses (39 hours). Two upper level MATH or STAT courses, plus two additional upper level courses in math, engineering, or science other than GEOL, plus 27 hours of technical courses (including GEOL), approved by department adviser.
- C. Other courses required (30 hours)  
Chemistry: CHEM 105, 106, 113  
Mathematics: Math 121 (or 123), 122 (or 124)  
Physics: PHYS 121 (or 123), 122 (or 124), 221 (or 223)  
Computer science: CMPS 131 or other approved programming course

### For Teacher Certification in Earth Science - grades 7-12

1. Completion of the major concentration in Geological Sciences for the B.A. as described above, plus ASTR 221
2. Completion of the minor in education (see EDUC listing on page 27)
3. Successful passing of required sections of the National Teachers Examination

**NOTE:** For information about teacher certification programs see Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714.

## **GEOLOGICAL SCIENCES (continued)**

### Minor in Geological Sciences

Hours: 15

Up to three courses from GEOL 101, 110, 114, 115 and 117; plus GEOL 119 and sufficient upper level GEOL courses to total 15 hours.

## **GERMAN (GEM)**

Academic Representative:

Professor David P. Benseler  
204 Guilford House, Ext 3071  
E-mail: dpb5@po.cwru.edu

### Major (for B.A.)

Hours: 30-32

#### **Students who begin the major at the 200-level:**

GRMN 201 and 202; six 300-level courses taught in German  
Two LITR or CMPL or other related courses as defined below.

#### **Students who begin the major at the 300-level:**

Eight 300-level courses taught in German  
Two LITR or CMPL courses or other related courses as defined below.

Related courses are those outside the German offerings which are closely related to German culture: Art History, Classics, History, Philosophy, as well as other language and literature courses. Study abroad is highly recommended for all majors, as is additional work in comparative literature and/or in another language. Courses other than German must be approved in advance by the major adviser.

### Minor

Hours: 15-19

#### **Students who begin German at the introductory level:**

GRMN 101, 102, 201, 202 and one 300-level course.

#### **Students who begin German at the 200-level:**

Five GRMN courses at the 200 or 300 level, as approved by the adviser.

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12-16

- A. With no previous work in German: GRMN 101, 102 or 112, 201, 202
- B. With the equivalent of one year of college German start at GRMN 201. With the equivalent of three semesters begin at GRMN 202. Students having completed four semesters of college German start at the 300-level.

Independent Study: GRMN 399

## GERMAN STUDIES (GES)

Academic Representative:  
Professor David P. Benseler  
204 Guilford House, Ext. 3071  
E-mail: dpb5@po.cwru.edu

### Major (for B.A.)

Thirty hours from the list of approved German Studies courses, including GRMN 303 and 304, GRST 398 (Senior Colloquium), and twenty-one additional hours from the approved list, no more than nine of which may be in any one department.

### Minor:

At least one of GRMN 303 or 304; four additional 300-level courses on the approved list of GRST courses from any two departments; or a thematic course of study (15 hours) approved in advance by the director of the German Studies Program.

## GERONTOLOGICAL STUDIES (GER)

Academic Representative:  
Professor Gary Deimling  
223C Mather Memorial, Ext. 5273  
E-mail: gtd@po.cwru.edu

### Major (for B.A.)

Hours: 30

1. Required Core Courses (15 hrs): ANTH 304, COSI 345, HSTY 480, SOCI 369, plus a fifth course chosen in consultation with the academic representative.
2. Elective Courses: at least 15 hours from the following list of courses: ANTH 215, 301, 305, 318, COSI 380, ENGL 363, 364, GERO 397, NTRN 440, PSCL 369, SOCI 311, 313

***NOTE: Gerontological Studies is available only as a second major for the B.A. To declare the major students should have declared a first major and have sophomore or junior standing. Up to six credits in courses taken by students for the first major may be applied to Gerontological Studies major.***

### Minor

Hours: 15

At least three of the core courses listed above for the major and two courses chosen from remaining core courses or approved electives.

### Social Science Sequence (for B.S. based on Case Core)

Hours: 12

At least two core courses from above and two additional courses drawn from the remaining core courses and the approved electives.

## HISTORY (HST)

Academic Representative:  
Professor Michael Altschul  
209 Mather House, Ext. 2514  
E-mail: mxa6@po.cwru.edu

### Major (for B.A.)

Hours: 30

- A. HSTY 112 and 113
- B. HSTY 250, 398
- C. Six additional courses in history, chosen in consultation with the departmental adviser. The majority of these courses should be in an area of concentration, which may be geographical (for example, European history) or chronological (for example, 20th century history) or thematic (for example, women's history), or some combination. The remaining courses are electives, and with permission a course outside history, in a closely related discipline, may be accepted as cognate credit towards the completion of the major.
- D. The ten courses required for a major should include at least one course in each of three different geographic areas.

### For teacher certification (grades 7-12)

- A. 12 hours American history, including 112; 152 or 253; 255 or 264; one of 351, 352, 355, 356, 358
- B. 12 hours World history, including 113; 131; one of 212, 223, 279, 377; one of 282, 285, 299, 375
- C. HSTY 250 and 398
- D. The completion of minor in education (see EDUC listing on page 27).
- E. Successful passing of required sections of the National Teachers' Examination.

**NOTE:** For information about teacher certification programs see Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714.

### Minor

Hours: 15

- A. HSTY 112 and 113
- B. Three additional courses chosen in consultation with the departmental adviser in an area of concentration.

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

- A. HSTY 112 and 113
- B. Two additional courses, chosen in consultation with the department adviser in an area of concentration.

### Independent Study

HSTY 397

## **HISTORY & PHILOSOPHY of SCIENCE and TECHNOLOGY (HSP)**

Academic Representative:  
Professor Alan Rocke  
104 Mather House, Ext. 2614  
E-mail: [ajr@po.cwru.edu](mailto:ajr@po.cwru.edu)

### Major (for B.A.)

Hours: 48

- A. HPST courses: PHIL 101, 201, 303; HSTY/PHIL 390 (Senior Seminar)  
Four of the following five courses: PHIL 302, HSTY 151, 152, 201, 202  
Three additional PHIL and HSTY courses at 300-level or above approved by HPST adviser, only two of which may be from the same department
- B. Science Requirement: 15 hours of a coherent sequence of science and/or engineering courses, normally with 6 hours at the 300-level or above, or a science minor

## **HISTORY of TECHNOLOGY and SCIENCE (HSS)**

Academic Representative:  
Professor Carroll Pursell  
216 Mather House, Ext. 2261  
E-mail: [cxp7@po.cwru.edu](mailto:cxp7@po.cwru.edu)

### Minor

Hours: 15

- A. Two of the following courses: HSTY 151, 152, 201, 202
- B. Three additional courses approved by the program adviser

### Humanities Sequence (for the B.S. based on Case Core)

Hours: 12

Must include two of the following courses: HSTY 151, 152, 201, 202; plus any two additional HSTY courses approved by the program adviser

## **HUMAN DEVELOPMENT (HDE)**

Academic Representative:  
Professor Richard Settersten  
Mather Memorial, Ext. 2697  
E-mail: [ras2@po.cwru.edu](mailto:ras2@po.cwru.edu)

### Minor

Hours: 15

- A. HDEV/SOCI 203
- B. PSCL 230
- C. Two courses selected from the following list:  
ANTH 104, 304, 306; COSI 313; HSTY 353; PSCL 369; SOCI 313, 361, 369
- C. HDEV 391

### Social Science Sequence (for B.S. based on Case Core)

Hours: 12

- A. PSCL 230, HDEV 203
- B. Two courses selected from the following list:  
ANTH 104, 304, 306; COSI 313; HSTY 353; PSCL 369; SOCI 313, 361, 369

## INTERNATIONAL STUDIES (IST)

Academic Representative:  
Professor Vincent E. McHale  
113 Mather House, Ext. 2424  
E-mail: vem@po.cwru.edu

### Major (for B.A.)

Hours: 33

- A. Foundations: ANTH 102, ECON 102, HSTY 113, POSC 272
- B. Area Focus: from an approved list of courses, six hours chosen in consultation with the academic adviser
- C. Topical Focus: from an approved list of courses, six hours chosen in consultation with the academic adviser
- D. Electives: from an approved list of courses, six hours chosen in consultation with the academic adviser
- E. Senior Colloquium: INTL 398 (3 hours)
- F. Language Competency: Competency in a non-native language. Courses must be approved by the Department of Modern Languages and Literatures (0-16 hours)

### Honors

INTL 398 (Exceptional papers may be considered for honors)

Independent Study: INTL 396 (International Studies majors only)

## JAPANESE (JAP)

Academic Representative:  
Professor David Benseler  
204 Guilford House, Ext. 3071  
E-mail: dpb5@po.cwru.edu

### Minor

Hours: 15-19

#### **For students beginning Japanese at the introductory level:**

JAPN 101, 102, 201, 202, and one 300-level course

#### **For students beginning Japanese at the 200-level or above:**

Five courses at the 200 and 300 levels approved by the chair of the department.

### Humanities sequence (for B.S. based on Case Core)

Hours: 12-16

For the beginning student: JAPN 101, 102, 201, 202.

The student entering the program with advanced standing will take more advanced courses to complete a minimum of 12 hours.

## LITERATURE (LIT)

Academic Representative:  
Professor Gary L. Stonum  
315 Guilford House, Ext. 3342  
E-mail: gxs11@po.cwru.edu

### Major

Hours: 33

- A. Foundations:  
One of the following sequences:  
CMPL 211-212, ENGL 255-256, LITR 290-291
- B. Language (minimum of 3 hours):  
202 or equivalent in language taught at CWRU
- C. Electives in Literature: 24 hours of literature electives in Classics, Comparative Literature, English, French, German, Japanese and Spanish offerings, at least 21 of which must be at the 300-level or above and should be distributed as follows:
  - 1. Historical coverage:  
As approved by the adviser, with at least six hours of electives in courses concerned with literature before 1800.
  - 2. Methods and Approaches:  
As approved by the adviser, at least 3 hours of electives in course work concerned with methods and concepts of literary study (e.g. LITR 340, ENGL 377, or ENGL 365G) or with the nature of genre (e.g. ENGL 257, CMPL 321, or ENGL 368A)

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

One of the following options:

- A. Two of the following sequences:  
CMPL 211-212, ENGL 255-256, LITR 290-291
- B. One of the above sequences and two courses in CMPL, ENGL, FRCH, GRMN, LITR and SPAN at least one of which must be on the 300 level

## MANAGEMENT INFORMATION & DECISION SYSTEMS (MIS)

A minor program in management information and decision systems is offered through the Weatherhead School of Management. See page 71.

## MATHEMATICS (MAT)

Academic Representative:  
Professor David Singer  
307A Yost Hall, Ext. 2892  
E-mail: das5@po.cwru.edu

Cooperative Education Adviser:  
Professor Marshall Leitman  
301 Yost Hall, Ext. 2890  
E-mail: mxl5@po.cwru.edu

**The following courses cannot be counted toward the MATH major or minor: MATH 101, 105, 106.**

### Major (for B.A.)

Hours: 41

#### A. Required Courses: (32 hours)

1. MATH 121 or 123; 122 or 124; 223 or 227; and 224 or 228
2. The Mathematics Core (15 hours)  
MATH 307, 308, 321, 322 or 323, and 324 or 425
3. CMPS 131 (3 hours)

#### B. Approved Electives: (9 hours)

Three approved elective courses are required. These electives must be approved by the student's adviser in the Department of Mathematics. MATH 150 if taken in the freshman year may count toward this requirement. With the approval of the adviser, one course from outside the department may be counted as one of these electives.

### Major (for B.S.)

Hours required for graduation: 126

1. MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228), 307, 308, 321, 322 or 323, and 324 or 425; and
2. One of the following sequences: ASTR 201-202, CHEM 105-106; GEOL 110 and either GEOL 115 or GEOL 210
3. CMPS 131
4. PHYS 121 (or 123), 122 (or 124), 221 (or 223)
5. 21 hours of approved technical electives, no more than 9 hours of which can be taken from outside the department
6. An approved science lab. BIOC 314, BIOL 111, CHEM 113, GEOL 119, PHYS 203 are appropriate.

### Major in Applied Mathematics (for B.S.)

Hours required for graduation: 125

The requirements of the B.S. in Applied Mathematics include requirements numbered 1 through 4 and 6 for the B.S. in Mathematics, along with the following:

- MATH 304
- 18 hours of approved technical electives
- A professional core in some field of application (12 hours of coursework)

### For Teacher Certification in Mathematics - grades 7-12

1. Completion of the B.A. program in mathematics as described above including MATH 150 among the three approved elective courses
2. The completion of a minor in Education (see EDUC listing on page 27)
3. Successful passing of required sections of the National Teachers Examination.

**NOTE:** For information about teacher certification programs see Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714

## **MATHEMATICS (continued)**

### Minor

Hours: 17

The minor in Mathematics consists of 17 credit hours of approved course work in Mathematics. No more than two courses can be used to satisfy both minor requirements and the requirements of the student's major field (meaning departmental degree requirements, including departmental technical electives and common course requirements of the student's school). The 17 hours must be selected from the following MATH courses: 121 or 123 or 125, 122, or 124 or 126, 223 or 227, 224 or 228, 150\*, 201\*\*, 301, 302, 303, 304, 307, 308\*\*, 321, 322, 323, 324, 331, 338, 343, 345, 380, or any 400-level\*\* MATH course.

\*To count toward a minor in Mathematics, MATH 150 must be taken in the freshman or sophomore years.

\*\*Only one of 201, 308, 470 can be taken for credit.

### Independent Study

MATH 301

## **MUSIC (MUS)**

Academic Representative:

Professor Ross W. Duffin

201 Haydn, Ext. 2400

E-mail: rwd@po.cwru.edu

All programs in music are conducted jointly by Case Western Reserve University and The Cleveland Institute of Music. The Bachelor of Arts and the Bachelor of Science in Music Education programs are administered by Case Western Reserve University. University students planning to major in music must pass an audition and should consult the Music Department academic representative for audition requirements.

### Concentrations for the major

- |                                 |                                      |
|---------------------------------|--------------------------------------|
| 1. General Musicianship         | 4. Early Music Performance Practices |
| 2. Performance                  | 5. Music Theory                      |
| 3. Music History and Literature | 6. Audio Recording                   |

### Major (for B.A.)

Hours: Variable depending upon concentration

#### A. Required Music Core Curriculum: (44 hours minimum)

Music Theory (20 hours)

Music History and Literature (9 hours)

Applied Music in principal performance area (15 hours)

Participation in assigned musical ensemble every semester of major (0-1 hr semester)

Participation in additional musical ensemble for one year (0-1 hour per semester)

Recital Class attendance and performance every year of major (0 hours)

Two semesters of Eurhythmics (0 hours) (fulfills the Physical Education requirement)

Attendance and participation in Freshman Colloquium: the World of Music (0 hours) during the first year of major

## MUSIC (continued)

### B. Additional requirements depending upon concentration:

1. General Musicianship concentration (3 additional hours)  
Music History and Literature (3 hours)
2. Performance concentration (18 additional hours)  
Applied Music in principal performance area (9 hours)  
Music History and Literature (3 hours)  
Foreign language (6 hours)
3. Music History and Literature (18 additional hours)  
Applied Music in principal performance area (3 hours)  
Music History and Literature (6 hours)  
Early Music Performance Practices (3 hours)  
Foreign language (6 hours)
4. Early Music Performance Practices (18 additional hours)  
Applied Music in principal performance area (3 hours)  
Music History and Literature (3 hours)  
Early Music Performance Practices (6 hours)  
Foreign language (6 hours)
5. Music Theory concentration (10 additional hours)  
Applied Music in principal performance area (3 hours)  
Music History and Literature (3 hours)  
Counterpoint (4 hours)
6. Audio Recording concentration (30 additional hours)  
Audio Recording courses (27 hours) plus specific MATH and PHYS requirements as part of the Arts and Science General Education Requirements

### Minor

Hours: 15-18

5-6 courses including:

1. Two in Music Theory (generally MUSC 103, 104)
2. Two in Music History/Appreciation (generally MUSC 221, 222 or 321, 322)
3. One or two courses as electives (may be Applied Music)

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

The following options are samples:

- A. Music History, Jazz and Performance: MUSC 221, 222, 229, APMU 111
- B. Music Theory: MUSC 103, 104, 221, 222
- C. Music History: MUSC 103, 104, 321, 322
- D. Music and the Computer: MUSC 103, 104, 221, 308

Independent Study: MUSC 399

**MUSIC EDUCATION (MUE) (B.S.)**

Hours: 120

*(based on modified Arts and Sciences General Education Requirements)*

Academic Representative:

Professor Gary M. Ciepluch

302 Haydn Hall, Ext. 2361

E-mail: gxc6@po.cwru.edu

Upon satisfactory completion of this program a student is eligible to be recommended for the Ohio Provisional Special Certificate to teach music in kindergarten through twelfth grade in Ohio and 26 reciprocating states. Students planning to pursue a B.S. in Music Education must pass an audition. Consult the department adviser for audition requirements. To be recommended for teacher certification, a student must maintain a 3.0 grade point average in professional education courses and an overall 2.5 grade point average and must receive passing scores on the required sections of the National Teachers Examination.

Music, Music Education and Education courses (\* indicates courses fulfilling Arts and Sciences General Education Requirements)

	<u>Hours</u>
Applied Music (major and minor areas)	15
Music Theory:(MUSC 101, 102, 105, 106, 201, 202, 205, 206, 317, 318)	20
*Music History (MUSC 321, 322)	6
Literature: One elective from 300 level Music Literature courses	3
Elements of Conducting (MUSC 275)	2
Advanced Conducting (MUSC 276)	2
Arranging for Voices and Instruments (MUSC 310)	3
Introduction to Education (EDUC 301)	3
*Foundations of Music Education (MUSC 241)	3
Elementary General Music Methods (MUSC 341)	3
Two of the following music methods electives:	
MUSC 342, 377, 378	6
Electives from various instrument classes (1 credit for each class)	5
Practice Teaching (MUSC 396)	<u>12</u>
	83

Courses to fulfill graduation requirements and the general requirements of the Ohio Department of Education

*ENGL 150	3
*A&S General Education Requirement: Mathematics	3
*A&S General Education Requirement: Natural Sciences	3
*A&S General Education Requirement: Natural Sciences <i>or</i> Science and Society	3
*A&S General Education Requirement: History, Philosophy, Religion	6
*Social and Behavioral Sciences: PSCL 101, EDUC 304	6
*A&S General Education Requirement: Global and Cultural Diversity	3
Electives outside of MUSC and EDUC	6
Open Electives	<u>4</u>
	37

Additional Requirements:

Participation in assigned musical ensemble every semester of major

Participation in additional musical ensemble for one year

Recital Class attendance and performance every year of major

Two semesters of Eurhythmics (fulfills Physical Education requirement)

## NATURAL SCIENCES (NAT)

Academic Representative:  
Dr. Joanne Westin  
102 Baker Bldg., Ext. 2928  
E-mail: jxw3

Departments included: Astronomy, Biology, Chemistry, Geological Sciences, Physics

Major (for B.A.) Hours: minimum of 50 in science and mathematics

20 hours in one of the departments listed above

8 hours in each of two other departments listed above

3 hours in each of the remaining two departments listed above

MATH 125-126 (or higher level courses in Mathematics)

The courses selected in each department must be courses which also satisfy the major or related course requirements of an existing science major.

***NOTE: Natural Sciences is available only as a second major for B.A. Students must also complete a major in one of the departments of humanities, arts and social sciences, excluding the programs in Environmental Studies, Gerontological Studies, Pre-Architecture.***

Minor Hours: Variable

Completion of requirements specified below for any four of the five departments listed.

1. Biology:  
BIOL 110 and BIOL 220, and one of the following laboratory courses:  
BIOL 111 or 221
2. Chemistry: CHEM 105-106, 113
3. Geological Sciences:  
Any one of GEOL 101, 110, 114, 115 or 117; and GEOL 119; and one other GEOL course
4. Mathematics: either of the following sequences:  
MATH 125-126 or MATH 121-122
5. Physics: either of the following sequences: PHYS 115-116 or PHYS 121, 122, 221

## NUTRITION (NTR)

Academic Representative:  
Professor Margaret Cicirella  
201 Dental School, Ext. 2440  
E-mail: mmc3@po.cwru.edu

Major (for B.A.) Hours: 36-39

- A. Required Nutrition Courses (17-18 hours):  
NTRN 201, 202\* or 342\*, 343, 363, 364, 399
- B. Additional Required Courses (12-14 hours)  
CHEM 105, 106; Biochemistry\*; BIOL 110\* or 220\* or 340\* or 348\* or PHOL 480\*
- C. Nutrition Electives (6 hours)\*  
Two courses from NTRN 328, 351, 360, 365, 435, 437, 440, 460

\*selection of course taken by the student is to be made in consultation with the student's major adviser

## **NUTRITION (continued)**

### Major (for B.S.)

Hours required for graduation: 120

- A. Courses in Nutrition (24 hours):
- Required: NTRN 201, 342, 343, 363, 364 15
  - Elective courses in Nutrition: three courses from  
NTRN 328, 351, 360, 365, 371, 435, 437, 440, 452, 455, 460 9
- B. Other required courses (25 - 27 hours):
- BIOL 110, 111 5
  - Biochemistry course (to be selected in consultation with adviser) 3
  - CHEM 105, 106, 113 8
  - CHEM 223 (before NTRN 363) 3
  - BIOL 340\* or BIOL 348\* or BIOL 220\* or PHOL 480\* 3-5
  - STAT 201, 243, 312, or 313 3

Students wishing to meet eligibility for dietetic registration should consult a department representative.

### Minor

Hours: 15

NTRN 201, 343 and, depending on the student's interest and preparation, 9 hours selected from: NTRN 202 or 342, 328, 351, 363, 364, 365

## **NUTRITIONAL BIOCHEMISTRY AND METABOLISM (NBM)**

Academic Representative:

Professor Hope Barkoukis

201 Dental School, Ext. 2440

E-mail: [hdb@po.cwru.edu](mailto:hdb@po.cwru.edu)

### Major (for B.A.)

Hours: 79

- A. Nutrition courses (18 hours)
1. NTRN 201, 342, 363, 364, 452
  2. Nutrition electives: 3 hours at 300-level or above
- B. Additional required courses (61 hours)
1. BIOC 307, 334
  2. BIOL 110, 210, 211, 326
  3. BIOL 340 or 348 or 220 or PHOL 480
  4. CHEM 105, 106, 113; 223, 224 (or 323, 324), 233, 234, 301, 302
  5. MATH 125, 126 (or 121, 122)
  6. PHYS 115, 116 or equivalent

### Major (for B.S.)

Total hours required for graduation: 123

- A. Nutrition courses (18 hours)
1. NTRN 201, 342, 363, 364, 452
  2. Nutrition electives: 3 hours at 300-level or above
- B. Additional required courses (73 hours)
1. CHEM 105, 106, 113, 223, 233, 224, 234, 301, 302
  2. MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228)
  3. PHYS 121 (or 123), 122 (or 124), 221 (or 223)
  4. BIOL 110, 210, 211, 220, 326
  5. BIOC 307, 334
  6. CMPS 131

## PHILOSOPHY (PHI)

Academic Representative:  
Professor Chin-Tai Kim  
208 Guilford House, Ext. 2810  
E-mail: cck6@po.cwru.edu

### Major (for B.A.)

Hours: 30

- A. PHIL 101, 201, 301 and 302
- B. Six courses chosen in consultation with department adviser

### Minor

Hours: 15

PHIL 101 and four other courses at the 200-300 level excluding PHIL 390, 398 and 399, chosen to meet specific needs of student. Consult adviser.

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

PHIL 101, 302 and two electives at 200-300 level excluding PHIL 390, 398 and 399. Consult adviser.

## PHYSICAL EDUCATION (PHE)

Academic Representative:  
Professor Nancy Gray  
Emerson Gym, Ext. 2863  
E-mail: nmg@po.cwru.edu

### Minor Concentration in Sports Medicine

Hours: 18

Required Courses: PHED 332, 340, 339, 334, 341, 342

## PHYSICS (PHY)

Academic Representative and Cooperative Education Adviser:  
Professor W. J. Fickinger  
202 Rockefeller Bldg., Ext. 4100  
E-mail: wjf@po.cwru.edu

### Major (for B.A.)

Hours: 70 (45 PHYS)

- A. Physics courses (45 hours):
  - PHYS 121 (or 123), 122 (or 124), 221 (or 223), 203, 204, 250
  - PHYS 301, 302 (or project lab), 310, 313, 315 or 316, 324, 331
- B. Additional courses required (25 hours):
  - CMPS 131 or approved alternate
  - MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228)
  - CHEM 105, 106 and 113

### Major (for B.S.)

Hours required for graduation: 127

- A. Physics courses (60 hours)
  - PHYS 121 (or 123), 122 (or 124), 221 (or 223), 203, 204, 250,
  - 301, 302, 310, 313, 315, 316, 324, 325, 331, 332, 351
- B. Additional courses required (25 hours):
  - CMPS 131 or approved alternate
  - MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228)
  - CHEM 105, 106 and 113

## **PHYSICS (continued)**

A B.S. program in Physics with emphasis on mathematical physics is available for physics majors with outstanding academic records at the end of their sophomore year. Entrance to this program requires committee approval. The program includes several graduate level courses, additional mathematics courses, and a theoretical mathematical physics project in the place of PHYS 351. Details are available from the Math Option Committee.

### For Teacher Certification in physics - For grades 7-12

1. Completion of major concentration in physics for B.A. as described above.
2. The completion of minor in education (see EDUC listing on 27).
3. Passing the required sections of the National Teachers Examination.

*NOTE: For information about teacher certification programs see Professor Timothy Shuckerow, Director of Teacher Certification, 115 Wickenden Bldg., Ext. 2714.*

### Minor

Hours: 15-17

One of the following three options:

- A. PHYS 121, 122, 221, plus two approved physics courses (see below)
- B. PHYS 123, 124, 223, plus two approved physics courses (see below)
- C. PHYS 115, 116, plus three approved physics courses (see below)

Approved physics courses to complete the minor:

PHYS 196, 204, 310, 313, 315, 316, 324, 331, 332

### Cooperative Education

Optimal Times:

Third Year - Spring/Summer

Fourth Year - Summer

Fifth Year - Fall

## **POLITICAL SCIENCE (POS)**

Academic Representative:

Professor Vincent E. McHale

113 Mather, Ext. 2424

E-mail: vem@po.cwru.edu

### Major (for B.A.)

Hours: 30

POSC 109

Two Political Science courses at the 200 level (6 hours)

Six Political Science courses at the 300 level (18 hours)

Senior project, taken as POSC 395 (3 hours)

***NOTE:** No more than six hours of independent study (i.e., POSC 395 and/or POSC 397/398) may be counted toward the major. Independent Study completed through the Washington Semester or Washington Center programs is excluded from this limitation.*

### Minor

Hours: 15

Five courses, three of which must be at the 300 level

Minor programs can be arranged with the academic representative or minor adviser in areas including, but not limited to : Pre-Law, Public Service/Public Management, Practical Politics, International Affairs/Transnational Relations

## **POLITICAL SCIENCE (continued)**

Social Science Sequence (*for B.S. based on Case Core*)

Hours: 12

A. POSC 109, 272 ( 6 hours)

B. Two Political Science courses at the 300 level

Various sequences can be arranged with the academic representative in areas including, but not limited to: Technology, Science, and Politics; International Affairs/Transnational Relations; American Government and Politics.

Honors Program:

POSC 397, 398 (limited to Political Science majors)

Independent Study - Special Projects

POSC 395 (requires prior faculty approval)

**PRE-ARCHITECTURE (PAR)—See page 18.**

## **PSYCHOLOGY (PSY)**

Academic Representatives:

Professor Robert Greene

124 Mather Memorial, Ext. 6473

E-mail: rlg2@po.cwru.edu

Major (*for B.A.*)

Hours: 30

A. Required courses

1. PSCL 101, 282 (6 hours)

2. Three courses (9 hours) from PSCL 315, 352, 353, 355, 357, 382, 393

B. Electives: A minimum of 15 credit hours of elective course work chosen by the student in consultation with his/her adviser. No more than 9 hours of practicum courses (PSCL 334, 335, or 336) may be applied to the major.

Minor

Hours: 15

A. Required Course: PSCL 101 (3 hours)

B. Electives: A minimum of four courses (12 hours) chosen by the student in consultation with his/her adviser. Practica and independent study are available to minors but cannot be used to satisfy the minor requirement.

Social Science Sequence (*for B.S. based on Case Core*)

Hours: 12

The sequence in psychology reflects an emphasis on cognitive/biological or social/personal aspects of the field. Sequences must include PSCL 101 and three courses from:

A. Personal and Social Behavior:

PSCL 102, 230, 313, 315, 317, 321, 325

or B. Cognitive/Biological Behavior:

PSCL 352, 353, 355, 357, 360

Independent Study

PSCL 397

## **PUBLIC POLICY (PPY)**

Academic Representative (Fall 1997)  
Professor Margaret Wyszomirski  
218 Mather House, Ext. 1637  
E-mail: mjw15@po.cwru.edu

Academic Representative (Spring 1998)  
Professor Vincent McHale  
111 Mather House, Ext. 2425  
E-mail: vem@po.cwru.edu

### Minor

Hours: 15

1. The policy process: POSC 386
2. Economic analysis: ECON 205
3. Policy making institutions: one course selected from HSTY 256, 358  
POSC 308, 310, 385
4. Two courses on a particular field of public policy selected with the approval of the adviser

## **RELIGION (RLG)**

Academic Representative:  
Professor Eldon Jay Epp  
112 Mather House, Ext. 2221  
E-mail: eje@po.cwru.edu

### Major (for B.A.)

Hours: 30

RLGN 201, 202, 203, 204  
Six additional Religion courses (18 hours)

### Minor

Hours: 15

Five courses that demonstrate diversity in the study of religion  
(selected in consultation with the adviser).

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

Four courses that demonstrate diversity in the study of religion  
(selected in consultation with the adviser).

### Independent Study

RLGN 390 (generally limited to junior and senior majors)

## **RUSSIAN (RUS)**

Academic Representative:  
Professor David P. Benseler  
204 Guilford House, Ext. 3071  
E-mail: dpb5@po.cwru.edu

### Minor

Hours: 15-19

#### **Students who begin Russian at the introductory level:**

RUSN 101, 102, 201, 202, and one 300-level course

#### **Students who begin Russian at the 200-level or higher:**

Five courses at the 200 and 300 levels approved by the chair of the department.

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12-16

A. Students with no background in Russian: RUSN 101, 102, 201, 202

B. Students with the equivalent of one year of college Russian. Emphasis on spoken Russian: RUSN 201, 202, 301, and additional work to earn 12 hours.

## SOCIOLOGY (SOC)

Academic Representatives:

Professor Gary Deimling  
226 Mather Memorial, Ext. 5173  
E-mail: gtd@po.cwru.edu

Professor Sue Hinze  
223D Mather Memorial Bldg., Ext. 8847  
E-mail: sxh3@po.cwru.edu

### Major (for B.A.)

Hours: 30

- A. SOCI 112, 300, 303
- B. STAT 201 or ANTH 319 or PSCL 282
- C. Any six additional courses in Sociology

### Minor

Hours: 15

SOCI 112, 300  
Three electives, at least two of which must be at the 300 level

### Social Science Sequence (for B.S. based on Case Core)

Hours: 12

SOCI 112, 113 and two courses selected from one of the following groups:

- 1. Modern Society: SOCI 208, 222, 302, 310
- 2. Social Problems: SOCI 204, 333, 349
- 3. Health and Aging: SOCI 311, 313, 319, 369

### Honors Study

SOCI 397/398

### Independent Study

SOCI 375

## SPANISH (SPA)

Academic Representative:

Professor Armando F. Zubizarreta  
214 Guilford, Ext. 2230  
E-mail: afz@po.cwru.edu

### Major (for B.A.)

Hours: 30-38

#### **For students who begin the major at the 200-level:**

SPAN 201 and 202; six 300-level courses taught in Spanish; two LITR or CMPL or other related courses.

#### **For students who begin the major at the 300-level:**

Eight 300-level courses taught in Spanish; two LITR or CMPL courses or other related courses. Related courses are those outside Spanish offerings which are closely related to Spanish or Latin American culture; Art History, Classics, History, Philosophy, as well as other language and literature courses. Study abroad is highly recommended for all majors, as is additional work in comparative literature and/or in another language. Courses other than SPAN must be approved in advance by the major adviser.

### Minor

Hours: 15-19

#### **Students who begin Spanish at the introductory level:**

SPAN 101, 102, 201, 202 and one 300-level course

#### **Students who begin Spanish at 200-level:**

Five courses at the 200 and 300 levels approved by the adviser.

## SPANISH (continued)

Humanities Sequence (for B.S. based on Case Core):

Hours: 12-16

Depending on previous study in Spanish, students may develop sequences in consultation with the adviser along the following lines:

- A. Students with no previous work in Spanish: SPAN 101, 102, 201, 202
- B. Emphasis on Spanish Literature: SPAN 202, 304, 311, and additional work to complete 12 hours

## STATISTICS (STA)

Academic Representative:

Professor Joe Sedransk

Rm. 332 Yost Hall; Ext. 6941

E-mail: [jxs123@po.cwru.edu](mailto:jxs123@po.cwru.edu)

Major (for B.A.)

Hours: 56

1. MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228), and 201 or equivalent;
2. CMPS 131 or ECMP 251 or approved alternate; plus additional higher numbered course in computation from CMPS or ECMP offerings or EPBI 414 or EPBI 420;
3. STAT 325 and 326, STAT 345 and 346
4. At least 15 hours of courses in statistical methodology to be chosen from statistics courses numbered 300 and higher offered by the Statistics Department, or approved courses in statistical methodology or probability taught in biostatistics, computer science, economics, mathematics, operations research, systems engineering, etc. At least 6 hours must be in STAT courses; STAT 243 and 244 may be counted.
5. Two approved courses (or more) numbered 300 or above in an approved discipline outside statistics.

Major (for B.S. in Statistics)

Hours required for graduation: 124

1. MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228), and 201 or equivalent;
2. CMPS 131 or ECMP 251 or approved alternate; plus additional higher numbered course in computation from CMPS or ECMP offerings or EPBI 414 or EPBI 420;
3. STAT 325 and 326, STAT 345 and 346;
4. At least 15 hours of courses in statistical methodology to be chosen from statistics courses numbered 300 and higher offered by the Statistics Department, or approved courses in statistical methodology or probability taught in biostatistics, computer science, economics, mathematics, operations research, systems engineering, etc. At least 6 hours must be in STAT courses; 243 and STAT 244 may be counted;
5. Two approved courses (or more) numbered 300 or above in an approved discipline outside statistics;
6. A combined total of 12 hours or more in ASTR, BIOL, CHEM, GEOL, PHYS which may be counted toward a major in that field including at least one of PHYS 121 and 122, CHEM 105 and 106 plus 113, BIOL 110 and 210 plus 211, BIOL 110 and 220 plus 221.

*Students are strongly encouraged to include advanced expository or technical writing courses in their programs.*

## STATISTICS (continued)

### Minor

Hours: 15

1. STAT 243 and 244, or STAT 345 and 346, or other approved two-course sequence
2. STAT 208 or STAT 312 or STAT 313 or STAT 332 or STAT 333 or STAT 325
3. Two approved elective courses in statistics numbered 300 or above.

### Option in Actuarial Science

The actuarial program leading to either a B.A. or a B.S. in Statistics requires 30 hours in statistics and actuarial studies and must satisfy the requirements for the appropriate degree program with the following modifications of requirements (4) and (5):

4. At least 12 hours of courses in statistical methodology to be chosen from statistics courses numbered 300 and higher offered by the or probability taught in biostatistics, computer science, economics, mathematics, operations research, systems engineering etc. At least 6 hours must be in STAT courses; STAT 243 and STAT 244 may be counted;
5. MATH 431, OPRE 401, STAT 317.

Students can ordinarily expect to be prepared to take Actuarial Exams for at least 100 credits in the Society of Actuaries prior to graduation.

## THEATER ARTS (THR)

Academic Representatives:

Dance:

Professor Kathryn Karipides

Mather Dance Center, Ext. 2854

E-mail: kxk8@po.cwru.edu

Drama:

Professor Catherine L. Albers

Eldred Theater, Ext. 5926

E-mail: cla2@po.cwru.edu

### Concentrations for the major

Hours: 56

1. General Theater
2. Acting
3. Design/Technical Theater
4. Dance

#### A. Required Theater Courses:

1. THTR 101, 102, 103, 104, 123, 124, 223, 224, 352, and one of the following: 228, 229, 342 (30 hours)
2. At least four, but no more than eight hours of THTR 385. Majors must enroll each semester.

#### B. Courses required for concentrations:

1. General Theater: THTR 231, 232, 331, 375, 385 (12 hours)
2. Acting: THTR 231, 232, 306, 331, 375, 376, 385, 411 (18 hours)
3. Design/Technical Theater: THTR 228, 229, 331, and two of the following: THTR 424, 425 or 426, and 440 (15 hours)
4. Dance: THTR 189, 190, 203, 204, 303, 304, 413 (17 hours)

#### C. Required courses in other departments:

Six hours of English, exclusive of ENGL 150, selected in consultation with adviser; recommendation: ENGL 324-325

**NOTE:** Students must take at least 24 but no more than 42 hours in Theater Arts courses above the 100 level and the total number of hours in Theater Arts may not exceed 60.

## **THEATER ARTS (continued)**

### Concentrations for the minor

Hours: 18

- A. General Theater: THTR 101, 103, 123, 124, 223 and 224, or 352 and one of the following 228, 229, 342
- B. Acting: THTR 101, 102, 123, 124, 231, 375, 385
- C. Design/Technical Theater: THTR 123, 124, 223, 224, 352, and one of the following: THTR 228, 229, 342
- D. Dance: THTR 103, 104, 203, 204, 303, 304

### Humanities Sequence (for B.S. based on Case Core)

Hours: 12

All sequences must include THTR 123 and 124 and two additional courses selected in consultation with adviser.

Sample programs are:

1. Acting: THTR 123, 124, 101, and 102
2. Dance: THTR 123, 124, 103, 104
3. Stagecraft: THTR 105, 123, 124, and 223 or 224
4. Costume Crafts and History: THTR 123, 124, 352 and one of the following:  
THTR 228, 229, 342

## **WOMEN'S STUDIES (WMN)**

Academic Representative:

Professor Christa Carvajal

203 Guilford House, Ext. 2220

E-mail: [csc3@po.cwru.edu](mailto:csc3@po.cwru.edu)

### Minor

Hours: 18

The program requires that a student take six courses. All students are required to take ENGL/HSTY/PHIL340, Introduction to Gender Studies, an introductory, interdisciplinary course designed to familiarize students with topics, theories and methods of Women's Studies. Students should take this course as early as possible in their minor program. The other five courses are chosen by the student as a student-based course of study. They must be chosen under the guidance of the program adviser in order to ensure depth and breadth of study within the minor.

### Humanities and Social Science Sequence (for B.S. based on Case Core)

Hours: 12

Twelve hours of work selected in consultation with the program adviser from courses approved for inclusion in the Women's Studies Program. The classification of the sequence as humanities or social science shall be determined by the program adviser on the basis of the courses selected.

# THE CASE SCHOOL OF ENGINEERING

Dean of the Case School of Engineering  
312 Glennan Building, Ext. 4436

## Degrees and Degree Requirements

### Bachelor of Science in Engineering (B.S.E.) Degree

The Bachelor of Science degree based on the Case Core is awarded in the following areas: aerospace engineering, biomedical engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, fluid and thermal engineering sciences, mechanical engineering, materials science and engineering, polymer science and engineering, systems and control engineering, and undesignated engineering.

Candidates for the Bachelor of Science in Engineering (B.S.E.), in addition to meeting the general requirements for bachelor's degrees as described on page 4, must also complete the following requirements:

1. A minimum of 127-137 hours as specified by the requirements for each B.S.E. program.
2. The Case Core Curriculum.
3. The Engineering Core
4. The requirements for the specific engineering major as presented in this handbook.

### Bachelor of Science (B.S.) - Computer Science

The Bachelor of Science degree in computer science is based on the Case Core. Candidates for the Bachelor of Science in Computer Science degree, in addition to meeting the general requirements for bachelor's degrees as described on page 4, must also complete the following requirements:

1. A minimum of 127 hours.
2. The Case Core Curriculum.
3. The requirements for the computer science major as presented in this handbook.

## The Case Core Curriculum

The Case Core curriculum of the Case School of Engineering provides a foundation in mathematics and sciences for programs in engineering and in computer science leading to the Bachelor of Science degree. The Case Core also is designed to develop communication skills and to provide a body of work in the humanities and social sciences.

### 1. *The English Composition Requirement* (3 semester hours)

ENGL 150. To be completed by the end of the first year with a grade of C or higher. Students having transfer credit for an English composition course taken at a US college/university and passed with a C or better must pass an English Placement Test administered by the Department of English or earn a grade of C or higher in ENGL 180, a one-credit writing tutorial, to meet the graduation requirement in English composition.

## CASE CORE CURRICULUM (continued)

2. **Computer Programming** (3 semester hours)  
Satisfied by completion of CMPS 131
3. **Mathematics** (14 semester hours)  
MATH 121 or 123; 122 or 124; 223 or 227; 224 or 228 or equivalent
4. **Chemistry** (8 semester hours)  
CHEM 111 and ENGR 145
5. **Physics** (11 semester hours)  
PHYS 121, 122, 221 (regular) or PHYS 123, 124, 223 (honors)
6. **Humanities & Social Sciences** (21 semester hours)  
Must include a four course sequence in a single department OR a departmental minor and two or three additional courses. The total of 21 hours (or 24 hours when a minor is taken) must include a minimum of two courses in the humanities and two courses in the social sciences.

Humanities Sequences are offered in the following disciplines: American Studies, Art History, Art Studio, Artificial Intelligence<sup>\*\*</sup>, Asian Studies, Chinese, Classics, Comparative Literature, English, Environmental Studies<sup>\*\*</sup>, French, French Studies, German, German Studies, History, History and Philosophy of Science and Technology, History of Technology and Science, Japanese, Literature, Music, Philosophy, Pre-Architecture, Religion, Russian, Spanish, Theater Arts, Women's Studies<sup>\*\*</sup>.

Social Science Sequences are offered in the following disciplines: Anthropology, Artificial Intelligence<sup>\*\*</sup>, Communication Sciences, Economics, Environmental Studies<sup>\*\*</sup>, Gerontological Studies, Human Development, Political Science, Psychology, Sociology, Women's Studies<sup>\*\*</sup>.

\* Art Studio courses cannot be used as part of the Humanities and Social Science requirement unless they are part of a sequence which includes at least two art history courses. Sequences in art studio require five, rather than four, courses.

\*\* Depending on the courses selected, sequences in Artificial Intelligence, Environmental Studies, and Women's Studies will be designated Humanities or Social Science by the program representative.

## **ENGINEERING CORE** **(20 credit hours)**

### **GENERAL REQUIREMENTS**

The engineering core requires that each program contains the equivalent of six three credit courses distributed among at least five of the following areas:

#### **Materials Science and Engineering**

EMSE 201	Introduction to Materials Science
EMAC 270	Introduction to Polymer Science
EMSE 314	Electrical, Optical, Magnetic Properties of Materials
EBME 306	Introduction to Biomedical Materials
EEAP 320	Electrical, Optical and Magnetic Properties of Matter

#### **Distributive Phenomena (transport, fluids or fields)**

ECHE 370, 371	Transport Phenomena I, II
EMAE 151	Fluid Mechanics
EEAP 309	Electromagnetic Fields
EMSE 260	Transport Phenomena

#### **Thermodynamics or Physical Chemistry**

EMAE 150	Thermodynamics I
EMAC 171/172	Physical Chemistry for Engineers
CHEM 301/302	Introduction to Physical Chemistry
CHEM 335/336	Physical Chemistry
ECHE 363	Thermodynamics of Chemical Systems

#### **Computer Application to Engineering Problems**

ECMP 251	Numerical Methods I
PHYS 249	Mathematical Physics and Computing
EMAE 250	Computers in Mechanical Engineering
ECMP/EEAP 282	Assembly Language Programming

#### **Electronic Circuits**

EEAP 240	Electronic Circuits
EEAP 245	Electrical Circuits, Signals and Systems I

#### **Systems or Control**

ESCI 212	Signals and Systems
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#### **Engineering Mechanics**

ECIV 110	Statics
EMAE 181	Dynamics

#### **Engineering Economics**

ESCI 352	Engineering Economics
OPRE 345	Decision Theory
ESCI 250	Production Systems Engineering

Each program must contain at least four engineering courses (minimum 12 credits) outside the major field of designation. These courses may or may not be engineering core courses.

#### **Graphics Proficiency - EMAE 192**

Proficiency may be obtained by a proficiency exam (no credit given) or by completing EMAE 192 (two hours of open elective credit given).

#### **Professional Communications - ENGL 398 (2)**

## Undergraduate Programs of The Case School of Engineering

*All major programs described in this section require completion of The Case Core (see page 53). Engineering majors must also complete the Engineering Core (see page 55). For all engineering programs, please see the CWRU General Bulletin and the individual departments for full details concerning technical electives, engineering core, hours required and recommendations regarding the appropriate semester/year in which students should enroll in specific courses.*

### AEROSPACE ENGINEERING (EAR)

Academic Representative and:  
Cooperative Education Adviser:  
Professor James S. T'ien  
415 Glennan, Ext. 4581  
E-mail: jst2@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 137

- A. Case Core
- B. Major Courses:  
EMAE 150, 151, 172, 181, 250, 282, 283, 350, 351, 355, 356, 359, 360, 376, 381, 382, 398
- C. Engineering Core:  
ECIV 110, EEAP 240, EMSE 201, ESCI 212, 214, EMAE 150\*, 250\*
- D. Technical Electives (3 hours)
- E. ENGL 398
- F. Graphics: EMAE 172

Cooperative Education:

Third Year - Spring/Summer  
Fifth Year - Summer/Fall

\* also serves for major requirement

### BIOMEDICAL ENGINEERING (EBI)

Academic Representatives:  
Professor Gerald M. Saidel  
504 Wickenden, Ext. 4066  
E-mail: gms3@po.cwru.edu

Cooperative Education Adviser:  
Professor Sanford Topham  
507 Wickenden, Ext. 4209  
E-mail: wst@po.cwru.edu

Professor Roger Marchant  
500 Wickenden, Ext. 3055  
E-mail: rxm4@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 129-134

- A. Case Core
- B. Biomedical Engineering Core  
EBME 105 (optional; open only to freshmen), 201, 202, 306, 309, 310, 313, 314, 380 or 398

## **BIOMEDICAL ENGINEERING (continued)**

- C. Engineering Core (see page 55): EEAP 245 and EEAP 246, and four courses selected from five of the engineering areas of: Materials, Distributive Phenomena, Thermodynamics, Computer Applications, Systems, Mechanics, or Engineering Economics
- D. EBME Specialty Sequence: 5-7 courses in a biomedical engineering specialty selected from Biomaterials (polymers), Biomaterials (orthopaedic), Biomechanics (tissues and implants), Biomechanical Prosthetic Systems, Biomedical Computer and Imaging, Clinical Engineering, Biomedical Instrumentation (devices), Biomedical Instrumentation (sensors), Biomedical Systems and Control
- E. STAT 312 (or 313, 332 or 333)
- F. ENGL 398
- G. Graphics: EMAE 192 or proficiency

### Minor (based on Case Core)

Hours: 15

- A. EBME 201, 202
- B. Two from the following: EBME 306, 309, 310
- C. One from the following: EBME 303, 307, 320, 324

### Cooperative Education:

arranged by the faculty adviser

## **CHEMICAL ENGINEERING (ECE)**

### Academic Representatives:

Professor Donald L. Feke  
111B Smith Bldg., Ext. 2750  
E-mail: dlf4@po.cwru.edu

### Cooperative Education Adviser:

Professor Philip Morrison  
133 Smith Bldg., Ext. 4238  
E-mail: pwm5@po.cwru.edu

Professor Robert F. Savinell  
111A Smith Bldg., Ext. 2728  
E-mail: rfs2@po.cwru.edu

### Major: (for B.S. in Engineering)

Hours required for graduation: 129-131

- A. Case Core
- B. Major Courses:  
ECHE 151, 260, 361, 362, 363, 364, 365, 367, 370, 371, 398, 399
- C. Related Required Courses:  
CHEM 223, 224, 320  
Engineering Core:  
ECMP 251, ECHE 363\*, 367\*, 370\*, 371\*, CHEM 302, EMSE 201
- D. Approved Technical Electives: 9-12 hours
- E. ENGL 398
- F. Graphics: EMAE 192 or proficiency

\* also serves for major requirement

## **CHEMICAL ENGINEERING (continued)**

Minor (based on Case Core)

Hours: 15

ECHE 260, 370, 371 plus two of the following courses:  
ECHE 361, 363, 367, 364

### Cooperative Education

Optimal Times:

Third Year - Summer/Fall

Fourth Year - Spring/Summer

## **CIVIL ENGINEERING (ECI)**

Academic Representative and Cooperative Education Adviser:

Professor Adel S. Saada

105A Bingham Bldg., Ext. 2427

E-mail: [axs31@po.cwru.edu](mailto:axs31@po.cwru.edu)

Major: (for B.S. in Engineering)

Hours required for graduation: 134

A. Case Core

B. Major Courses:

ECIV 110, 161, 210, 211, 220, 221, 260, 330, 340, 351, 368, 398

C. Related Required Courses:

Engineering Core: ECMP 251, EEAP 240, EMSE 201, EMAE 181, 150, 151

D. Approved Technical Electives: 12-15 hours\*

E. ENGL 398

F. Graphics: EMAE 192 or proficiency

\* The approved technical electives allow the student to choose among the following areas of concentration:

1. Environmental Engineering
2. Structural Engineering
3. Geotechnical Engineering
4. Construction Engineering and Management
5. Engineering Mechanics

Minor (based on Case Core)

ECIV 110, 211 plus a minimum of 10 credit hours from one of the following areas approved by the minor adviser: Environmental Engineering, Solid Mechanics, Structural and Geotechnical Engineering, Construction Engineering and Management.

### Cooperative Education

Optimal Times:

Second Year - Spring/Summer

Third Year - Summer

Fourth Year - Fall

## COMPUTER ENGINEERING (ECM) AND COMPUTER SCIENCE (CMP)

Academic Representative:  
Professor George W. Ernst  
508 Olin Bldg., Ext. 2839  
E-mail: ernst@alpha.ces.cwru.edu

Cooperative Education Adviser:  
Professor Robert Edwards  
407 Olin Bldg., Ext. 2802  
E-mail: rve2@po.cwru.edu

### Major in Computer Engineering (for B.S. in Engineering)

Hours required for graduation: 132

- A. Case Core
- B. Major Courses:  
ECMP 251, 280, 316, 317, 333, 337, 338, 398, 399
- C. Related Required Courses: MATH 304  
Engineering Core:  
EEAP 240, 282, ESCI 212, ECMP 251\*, and two core electives
- D. Approved Technical Electives: 3 hours  
Systems elective (3 hours)  
Statistics elective (3 hours)
- E. ENGL 398
- F. Graphics: EMAE 192 or proficiency

\* also serves for major requirement

### Minor in Computer Engineering: (based on Case Core)

- A. EEAP 282, ECMP 333 plus one of the following tracks
  1. Hardware sequence: ECMP 280, 316
  2. Software sequence: ECMP 337, 338
- B. In addition to these two tracks, the student may design his/her own with the approval of the minor adviser.

### Major in Computer Science: (for B.S. based on Case Core)

Hours required for graduation: 127

- A. ECMP 251, 280, 333, 337, 338, EEAP 282
- B. CMPS 340, 343
- C. MATH 304, and either MATH 201 or MATH 380
- D. Six additional 3 credit hour technical electives (approved by adviser)

### Minor in Computer Science: (based on Case Core)

Hours: 15

- A. ECMP 333, 338, CMPS 340
- B. A student must take an additional four credit hours of CMPS or ECMP courses.

### Cooperative Education:

Optimal Times:  
Third Year-Spring/Summer  
Fourth Year-Summer  
Fifth Year- Fall

For B.A. program in Computer Science, see page 26.

*Note: Because of the large overlap in courses, a student is not permitted to have a major and a minor, or two minors in both Computer Science and Computer Engineering.*

## ELECTRICAL ENGINEERING (EAP)

Academic Representative (majors):  
Professor Steven Garverick  
710B Glennan Bldg., Ext. 6436  
E-mail: slg9@po.cwru.edu

Cooperative Education Adviser:  
Professor Michael Branicky  
516 Glennan Bldg., Ext. 5268  
E-mail: msb@pris.eeap.cwru.edu

Academic Representative (minors):  
Professor Dov Hazony  
710A Glennan Bldg., Ext. 3937  
E-mail: dlh2@po.cwru.edu

### Major: (for B.S. in Engineering)

Hours required for graduation: 132

- A. Case Core
- B. Major Courses:  
EEAP 282, 245, 246, 309, 321, 344, 398, 399, and either EEAP 310 or 311
- C. Related Engineering Courses  
Engineering Core:  
EMSE 314, EEAP 245\*, 282\*, 309\*, ECMP 280  
Six hours core electives to be chosen from two of the following groups:
  - 1. ECIV 110 or EMAE 181
  - 2. ESCI 250, 352 or OPRE 345
  - 3. EMAE 150
- D. Approved Technical Electives (9 hours)
- E. ENGL 398
- F. Graphics: EMAE 192 or proficiency
- G. Probability and Statistics: STAT 332 plus EEAP 352 (or other class approved by department)
- H. Open Electives (9 hours)

\* also serves for major requirement

### Minor (based on Case Core)

EEAP 245, 246, 282, 309  
One approved technical elective

### Electronics Minor (available to B.A. students only)

CMPS 131  
EEAP 240, EEAP 282  
ECMP 280  
MATH 125, 126 (or MATH 121, 122), MATH 224  
PHYS 115, 116 or PHYS 121, 122, 221

### Cooperative Education

Optimal Times:  
Summer/Fall **AFTER** second year  
Spring/Summer of third year

Alternatively:  
Spring/Summer of third year  
Summer/Fall **AFTER** fourth year

## **FLUID and THERMAL ENGINEERING SCIENCE (EFT)**

Academic Representative and:  
Cooperative Education Adviser:  
Professor Isaac Greber  
417 Glennan, Ext. 6451  
E-mail: ixg2@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 137

- A. Case Core
- B. Major Courses:  
EMAE 150, 151, 152, 172, 181, 250, 282, 283, 350, 351, 355, 356, 359, 360, 398
- C. Engineering Core:  
ECIV 110, EEAP 240, EMSE 201, ESCI 212, 214, EMAE 150\*, 250\*
- D. Technical Electives (9 hours)
- E. ENGL 398
- F. Graphics: EMAE 172

\*also serves for major requirement

### Cooperative Education

Optimal Times:

Third Year - Spring/Summer

Fifth Year - Summer/Fall

## **MATERIALS SCIENCE and ENGINEERING (EMS)**

Academic Representative (Major):  
Professor Gary M. Michal  
316 White Bldg., Ext. 5070  
E-mail: gmm3@po.cwru.edu

Cooperative Education Adviser:  
Professor James Cawley  
500B White Bldg., Ext. 6482  
E-mail: jxc41@po.cwru.edu

Academic Representative (Minor):  
Professor Mark DeGuire  
412 White Bldg., Ext. 6481  
E-mail: mrd2@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 133

- A. Case Core
- B. Major Courses: EMSE 102, 201, 202, 203, 210, 211, 260, 301, 302, 303, 313, 314, 317, 398, 399
- C. Engineering Core: CHEM 301, ECMP 251 or PHYS 250 or EMAE 250, EEAP 240, ECIV 110, EMSE 201\*, 260\*, 314\*
- D. Technical electives (9 hours)
- E. ENGL 398
- F. Open electives (9 hours)
- G. Graphics: EMAE 192 or proficiency

\*also serves for major requirement

## **MATERIALS SCIENCE and ENGINEERING (continued)**

Minor (based on Case Core)

Hours: 15

EMSE 201 plus four of the following courses selected in consultation with the department minor adviser:  
EMSE 202, 203, 260, 301, 303, 307, 313, 314, 316, 317

### Cooperative Education

Optimal Times:

Second Year - Summer

Third Year - Fall

Fourth Year - Spring/Summer

## **MECHANICAL ENGINEERING (EMC)**

Academic Representative and Cooperative Education Adviser:

Professor Joseph M. Prahl

418 Glennan Bldg., Ext. 2941

E-mail: jmp@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 137

A. Case Core

B. Major Courses:

EMAE 150, 151, 172, 181, 250, 271, 282, 283, 350, 351, 355, 360, 370, 398

C. Related Required Courses: ESCI 214, ECIV 210, OPRE 345

Engineering Core: ECIV 110, EEAP 240, EMSE 201, ESCI 212, 214, EMAE 150\*, 250\*

D. Technical Electives (9 hours)

E. ENGL 398

F. Graphics: EMAE 172

\* also serves for major requirement

### Cooperative Education

Optimal Times:

Third Year - Spring/Summer

Fifth Year - Summer/Fall

## **POLYMER SCIENCE and ENGINEERING (POL)**

Academic Representative and Cooperative Education Adviser:

Professor Steven D. Hudson

337 Kent Smith, X6373

E-mail: sdh6@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 132

A. Case Core

B. Major Courses:

EMAC 351, 352, 270, 272, 276, 372, 376, 377, 378, 398

C. Related Required Courses:

CHEM 223, 234, 321

Engineering Core: ECIV 110, ECHE 370, 371, ECMP 251, EEAP 240,

EMAC 351\*, 352\*, 270\*,

ECHE 371

## **POLYMER SCIENCE AND ENGINEERING (continued)**

- D. Technical Electives (9 hours)
- E. Open Electives (3 hours)
- F. ENGL 398
- G. Graphics: EMAE 192 or proficiency

\* also serves for major requirement

### Minor:

EMAC 270, plus four courses from the department listings, subject to approval by minor adviser

### Cooperative Education

Optimal Times:

Third Year - Spring/Summer

Fifth Year - Summer/Fall

## **SYSTEMS and CONTROL ENGINEERING (ESC)**

Academic Representative:  
Professor Howard J. Chizeck  
605 Olin Bldg., Ext. 3836  
E-mail: hjc2@po.cwru.edu

Cooperative Education Adviser:  
Professor Kenneth Loparo  
705 Olin Bldg., Ext. 4115  
E-mail: kal4@po.cwru.edu

### Major: (for B.S. in Engineering)

Hours required for graduation: 130

- A. Case Core
- B. Major Courses: ESCI 110, 212, 214, 304, 305, 313, 322, 346, 352, 398, 399
- C. Related Required Courses: STAT 312 or STAT 332, MATH 201  
Engineering Core: ECMP 251 and core electives (15 hours)
- D. Technical Electives (9 hours)
- E. ENGL 398
- F. Graphics: EMAE 192 or proficiency

### Minor: (based on Case Core)

Hours: 15

A total of five courses are required to obtain a minor. Three of the five must be from the following: ESCI 212, 304, 346.

The remaining two courses are to be chosen from the available courses in the department and require the written approval by the faculty member in charge of the minor program.

A suggested list of courses is:

- A. Systems: ESCI 202, ESCI 352/353
- B. Control: ESCI 313, 306

### Cooperative Education

Optimal Times:

Third Year - Spring/Summer

Fourth Year - Summer

Fifth Year - Fall

## ENGINEERING (Undesignated) (EGR)

Hours required for graduation: 131

Academic Representative:  
Dean's Office, School of Engineering  
307 Olin Bldg., Ext. 8760

Major: (for B.S. in Engineering)

- A. Case Core
- B. An engineering major approved by the major department Min. of 24 Hrs.
- C. Related Required Courses: a minor approved by minor department Min. of 15 Hrs.  
Engineering Core: ECMP 251, EEAP 240 and core electives (12 hours)
- D. Technical electives
- E. ENGL 398
- F. Graphics: EMAE 192 or proficiency

*The major should be declared in the freshman year and the program approved by the academic representative after major and minor approvals are obtained.*

## THE FRANCES PAYNE BOLTON SCHOOL OF NURSING

Joyce J. Fitzpatrick, Dean  
2121 Abington Road, Ext. 2544  
E-mail: jjf4@po.cwru.edu

### **Bachelor of Science in Nursing (B.S.N.) Degree Requirements**

The Bachelor of Science in Nursing (B.S.N.) degree is based on the School of Nursing General Education Requirements. Candidates for the Bachelor of Science in Nursing (B.S.N.) degree must complete the general requirements for bachelor's degrees (page 4) and also complete the following requirements:

1. A minimum of 122 hours.
2. The School of Nursing General Education Requirements.
3. The requirements for the major in nursing as presented in this handbook.
4. A minimum of 62 semester hours of courses at the 300-400 level.
5. For all courses taken in nursing, a minimum grade of C.

*Students in this program may not exercise the P/NP option for any courses*

### **School of Nursing General Education Requirements**

The General Education Requirements of the Frances Payne Bolton School of Nursing are based upon the Arts and Sciences General Education Requirements, and provide a broad educational foundation for the Bachelor of Science in Nursing program.

1. ***The English Composition Requirement*** (3 semester hours)  
ENGL 150. To be completed by the end of the first year with a grade of C or higher. Students having transfer credit for an English composition course taken at a US college/university and passed with a C or better must pass an English Placement Test administered by the Department of English or earn a grade of C or higher in ENGL 180, a one-credit writing tutorial, to meet the graduation requirement in English composition.
2. ***Natural and Mathematical Sciences*** (17 semester hours total)
  - a. *Mathematical Reasoning and Analysis:* a statistics course chosen from STAT 201 or ANTH 319 or PSCL 282
  - b. *Natural Sciences:* BIOL 110, 119, 121, 146, and 147
3. ***Arts and Humanities*** (12 semester hours total) The requirement is the same as the Arts and Humanities requirements of the Arts and Sciences General Education Requirements (page 13) except that the two courses taken under a single heading need not form a sequence.

### **School of Nursing General Education Requirements (continued)**

4. ***Social Sciences*** (6 semester hours total)
  - a. *Social Institutions*: PSCL 101 or ANTH 102 or SOCI 112
  - b. *Human Behavior and Development*: SOCI 361
  
5. ***Global and Cultural Diversity*** (3 semester hours) The requirement is the same as the Global and Cultural Diversity requirement of the Arts and Sciences General Education Requirements (page 14)

### **NURSING (NUR)**

Academic Representative:

Dr. M. Jane Suresky

School of Nursing, Ext. 8839

Major (for B.S.N.)

Hours required for graduation: 122

- A. Required Courses in Nursing (81 Hours)  
NURS 110, 111, 120, 122, 201, 222, 230, 240, 315,  
316, 317, 318, 320, 341, 342, 343, 344, 345, 351, 353,  
352 or 354 or 356
- B. School of Nursing General Education Requirements (41 hours)

## WEATHERHEAD SCHOOL OF MANAGEMENT

Scott S. Cowen, Dean  
500 Enterprise Hall, Ext. 2046  
E-mail: ssc@po.cwru.edu

### **Degree Programs and Requirements**

#### **Bachelor of Science (B.S.) Degree - Weatherhead School of Management**

The B.S. degree based on the Weatherhead School of Management General Education Requirements is awarded in Accounting and Management. Candidates for the Bachelor of Science in Accounting and the Bachelor of Science in Management degrees, in addition to meeting the general requirements for bachelor's degrees as described on page 4, must also complete the following requirements:

1. A minimum of 122 hours.
2. The Weatherhead School of Management General Education Requirements
3. A minimum of 30 semester hours of courses at the 300-400 level.
4. The requirements for a major field as presented in this handbook. For all courses taken in the major department and for which grades are averaged, and for all courses taken to satisfy major requirements and for which grades are averaged, a candidate for a B.S. from the Weatherhead School of Management must earn a minimum cumulative average of 2.0. Major requirements include all required and elective work completed in the major department combined with required courses completed in related fields. Transfer students must complete at Case Western Reserve University at least half the hours required for the major.

#### **Weatherhead School of Management General Education Requirements**

The Weatherhead School of Management General Education Requirements are based upon the Arts and Science General Education Requirements, and provide a broad educational foundation for programs in accounting and management, leading to the Bachelor of Science degree.

1. ***The English Composition Requirement*** (3 semester hours)  
ENGL 150. To be completed by the end of the first year with a grade of C or higher. Students having transfer credit for an English composition course taken at a US college/university and passed with a C or better must pass an English Placement Test administered by the Department of English or earn a grade of C or higher in ENGL 180, a one-credit writing tutorial, to meet the graduation requirement in English composition.

## Weatherhead School of Management General Education Requirements (continued)

2. **Natural and Mathematical Sciences** (for accounting majors, 17 semester hours total; for management majors, 20 semester hours total) In addition to the specified mathematics and statistics courses, students must complete at least one course from area b) Natural Sciences, and an additional course from area b) or from area c) Science and Society.
  - a. *Mathematical Reasoning and Analysis:* (11-14 semester hours):  
MATH 125-MATH 126 or equivalent courses in introductory calculus, and  
STAT 207; management majors must also complete STAT 208
  - b. *Natural Sciences:* (minimum 3 semester hours) See Arts and Sciences  
General Education Requirements (page 13)
  - c. *Science and Society:* (0-3 semester hours) See Arts and Sciences General  
Education Requirements (page 13)
3. **Arts and Humanities** (for accounting, 9 semester hours total; for management 12 semester hours total) The requirement is the same as the Arts and Humanities requirement of the Arts and Sciences General Education Requirements (see page 13), except that accounting majors are exempt from the 3-hour arts requirement.
4. **Social Sciences** (for accounting, 12 semester hours total; for management, 9 semester hours total)
  - a. *Social Institutions:* (6 semester hours): ECON 102 and 103
  - b. *Human Behavior and Development:* (3-6 semester hours)  
Accounting majors must complete two courses (6 semester hours) in this area, as follows:
    - 1) COSI 100 or COSI 236, and
    - 2) PSCL 101 or SOCI 112Management majors must complete one course (3 semester hours), selected from the following:  
ANTH 104, COSI 100, COSI 109, PSCL 101, SOCI 112, SOCI 310
5. **Global and Cultural Diversity** (3 semester hours) The requirement is the same as the Global and Cultural Diversity requirement of the Arts and Sciences General Education Requirements (see page 14).

## Undergraduate Programs of The Weatherhead School of Management

### ACCOUNTING (ACC)

Academic Representative  
and Cooperative Education Adviser:  
Professor David Campbell,  
653 Sears Library Bldg., Ext. 5479  
E-mail: drc3@po.cwru.edu

Academic Representative:  
Professor Timothy Fogarty  
638 Enterprise Hall, Ext. 3938  
E-mail: tjf@po.cwru.edu

*Students may not use the P/NP option for ACCT or MGMT courses.*

Major (for B.S. in Accounting)

Hours required for graduation: 122

A. Requirements in Accounting and Management (60 hours):

ACCT 101, 102, 300, 301, 302, 304, 305, 314	24
BAFI 355	3
BLAW 329, 330	6
MKMR 301	3
OPMT 350	3
MIDS 308, 309	6
ORBH 250	3
PLCY 399	3
Electives in Weatherhead School of Management (no more than 6 hours in ACCT)	9

B. Requirements in other fields (47 hours):

WSOM General Education Requirements (see page 67)	44
ECON 341	3

C. Open/Non-WSOM Electives (must be from *outside* WSOM, or from economics) 15

Students in B.S. in Accounting are advised to take ACCT 101, 102 and ECON 102, 103 as early as possible.

Cooperative Education:

Optimal Times:

Third Year - Spring Semester

### ECONOMICS (ECO)

Economics is offered as a major for the B.A. degree awarded by the College of Arts and Sciences.

**See page 27 for descriptions of major, minor, and sequence programs in economics**

## MANAGEMENT (MGT)

Academic Representative  
and Cooperative Education Adviser:  
Dr. James L. Strachan  
341 Enterprise Hall, Ext. 2052  
E-mail: jls13@po.cwru.edu

Academic Representative:  
Mr. John P. Fischer, M.B.A.  
661 Enterprise Hall, Ext. 3856  
E-mail: jxf13@po.cwru.edu

***Students may not use the P/NP option for ACCT or MGMT courses***

Major (for B.S. in Management)

Hours required for graduation: 122

A. Requirements in Management (48 hours):

ACCT 101, 102	6
BAFI 355	3
MIDS 308, 309	6
OPRE 201	3
ORBH 250	3
MKMR 301	3
PLCY 200, 399	6
OPMT 350	3
LHRP 251 or LHRP 311	3
Management Concentration Sequence* of three courses (see below)	9
Management elective	3

\* Students must complete a sequence of three approved courses from one of the areas shown below. (Sequences in Organizational Behavior or Operations Research may also be available. See advisers for details.) Sequences are:

<u>Accounting</u>	<u>Finance and Economics</u> ***		<u>Information Systems</u>	<u>Operations Management</u>
ACCT 300	BAFI/ECON 341	ECON 361	MIDS 307**	OPMT 351
ACCT 301	BAFI/ECON 342	ECON 369	MIDS 310	OPMT 352
ACCT 302	BAFI 356	ECON 372	MIDS 327	ESCI elective
	ECON 326	ECON 374		
	ECON 332	ECON 375		

\*\* ***Optional if student has programming experience or completed CMPS 131***

\*\*\* ***Choose three of the courses listed.***

B. Requirements in other fields (47 hours):

WSOM General Education Requirements (see page 67) 47

C. Non-WSOM Electives (must be from *outside* WSOM, or from economics) 15

D. Open Electives 12

Cooperative Education

Optimal Times:  
Third Year - Spring/Summer  
Fourth Year - Summer/Fall

## **MANAGEMENT INFORMATION & DECISION SYSTEMS (MIS)**

Academic Representative:  
Professor Miles Kennedy  
698 Enterprise Hall, Ext. 2094  
E-mail: [mhk@po.cwru.edu](mailto:mhk@po.cwru.edu)

### Minor

Hours: 15-18

1. One of CMPS 131 or MIDS 307
2. MIDS 308, 309 and two additional MIDS courses or other courses approved by the minor adviser

## ACADEMIC ADVISING

### FRESHMAN ADVISERS

The freshman advisers are faculty members and administrators interested in helping entering students to plan a course of study and to meet effectively the challenges of college work. They are ready to discuss plans for careers and further study in graduate or professional schools and to refer students to other sources of advice and counseling as necessary.

Freshmen are urged to consult their advisers at any time about their academic interests or concerns, and must have their schedules and changes of schedules (drop/add and withdrawal cards) approved and signed by their advisers.

### SELECTION OF MAJORS AND MINORS; DEPARTMENTAL ADVISERS

Although some freshmen enter with definite goals, they are not assigned to departmental advisers until they have completed at least a semester's work. After the completion of the first semester's work, students should seek from department chairs or representatives specific information regarding programs and major concentration in which they have an interest. See pages 8 and 9 for a list of designated representatives.

Students should select a major by no later than the end of the sophomore year. When a student selects a specific major or minor, the department representative assigns a faculty adviser and sends a copy of the major or minor form to the Office of Undergraduate Studies, Baker 102. A choice or change of major or minor is not recorded for any student until that form has been completed and returned to the Office of Undergraduate Studies, Baker 102.

After the freshman year, students who have not declared a major should consult the Office of Undergraduate Studies for advice and schedule approval.

### PRE-PROFESSIONAL ADVISERS

Students planning to continue in a graduate or professional school are urged to consult the appropriate adviser:

#### Accountancy (MACC)

Professor Larry Parker  
650 Enterprise Hall, Ext. 2065  
E-mail: lmp3@po.cwru.edu

#### Management (MBA)

Dr. James L. Strachan  
341 Enterprise Hall, Ext. 2052  
E-mail: jls13@po.cwru.edu

#### Dentistry

Dr. Joanne Westin  
Office of Undergraduate Studies  
102 Baker Building, Ext. 2928  
E-mail: jxw3@po.cwru.edu

#### Medicine

Dr. Joanne Westin  
Office of Undergraduate Studies  
102 Baker Bldg., Ext. 2928  
E-mail: jxw3@po.cwru.edu

#### Law

Professor Alexander P. Lamis  
222 Mather House, Ext. 2696  
E-mail: apl2@po.cwru.edu

#### Nursing

Dr. M. Jane Suresky  
School of Nursing, Ext. 8839

Ms. Laura Tartakoff, M.A., J.D.  
Mather House, Ext. 2432  
E-mail: lyt@po.cwru.edu

## ADVISERS FOR SPECIAL PROGRAMS

For further information concerning special programs consult:

### **B.S./M.S. (Engineering)**

Office of the Dean  
Case School of Engineering  
307 Olin Bldg., Ext. 8760

### **B.S./M.S. (Science or Math)**

Dean Margaret Robinson  
Office of Undergraduate Studies  
102 Baker Bldg., Ext. 2928  
E-mail: mxr5@po.cwru.edu

### **Binary Program**

Ms. Claudia Anderson-Nhok  
102 Baker Bldg., Ext. 2928  
E-mail: cca2@po.cwru.edu

### **COOP Program**

Ms. Deborah Fatica  
Office of Career Planning and Placement  
307 Pardee Hall, Ext. 4446  
E-mail: dxf3@po.cwru.edu

### **Fellowships/Scholarships**

Dean Margaret Robinson  
Office of Undergraduate Studies  
102 Baker Bldg., Ext. 2928  
E-mail: mxr5@po.cwru.edu

### **Integrated Graduate Studies**

Department Chair and  
Office of Undergraduate Studies  
102 Baker Bldg., Ext. 2928

### **Internships**

Ms. Heidi McCormick  
Office of Career Planning and Placement  
307 Pardee Hall, Ext. 4446

### **Junior Year Abroad**

Dean Margaret Robinson and  
Ms. Claudia Anderson-Nhok  
102 Baker Bldg., Ext. 2928  
E-mail: mxr5@po.cwru.edu  
cca2@po.cwru.edu

### **MEIOP/Minority Student Programs**

Dean Margaret Boulding  
116 Baker Bldg., Ext. 2904  
E-mail: meb7@po.cwru.edu

### **Senior Year in *absentia***

Dean Margaret Robinson  
Office of Undergraduate Studies  
102 Baker Bldg., Ext. 2928  
E-mail: mxr5@po.cwru.edu

### **Senior Year in Professional Studies**

Dean Margaret Robinson  
Office of Undergraduate Studies  
102 Baker Bldg., Ext. 2928  
E-mail: mxr5@po.cwru.edu

### **Teacher Certification**

Professor Timothy Shuckerow  
115 Wickenden, Ext. 2714  
E-mail: txs10@po.cwru.edu

### **Undergraduate Scholars Program**

Dean Timothy Dodd  
Office of Undergraduate Studies  
102 Baker Bldg., Ext. 2928  
E-mail: tmd6@po.cwru.edu

### **Washington Semester**

See Department Chair  
Department of Political Science  
Mather House, Ext. 2424

## CAREER COUNSELING

Students needing assistance in making or planning toward career choices, the Office of Career Planning and Placement (304 Pardee Hall, Ext. 4446) offers a variety of counseling services.

## **PRE-PROFESSIONAL CURRICULA**

In order to meet the admission requirements of most schools of law, management, medicine and dentistry, nursing and social work, students complete an appropriate pre-professional curriculum that can be integrated into the other requirements for the baccalaureate they are pursuing.

### **BUSINESS ADMINISTRATION**

Students interested in entering a program leading to the Master in Business Administration (M.B.A.) degree may complete any course of study leading to a B.A. or B.S. degree. Two semesters of calculus are strongly recommended. By including appropriate courses in their undergraduate work, students may qualify to apply for an accelerated M.B.A. program at the Weatherhead School of Management at Case Western Reserve University.

### **LAW**

Pre-law students may major in any area in the humanities, natural sciences, social sciences or management. In fulfilling the requirements of their programs, they should select courses that place an emphasis on writing skills, logical analysis and analytical methods. In addition to core or general education requirements, it is strongly recommended that students take at least one course in accounting.

### **MEDICINE AND DENTISTRY**

Students planning careers in medicine or dentistry may pursue any of the degree and/or major programs offered at the University. They can satisfy the admission requirements of virtually all U.S. medical or dental schools and be well prepared for the MCAT and/or DAT by incorporating into their studies two semesters of Principles of Chemistry with laboratory; two semesters of Organic Chemistry with laboratory; four semesters of Biology including Chemical Biology, Cell Biology and Organismal Biology; two semesters of Physics with laboratory; two semesters of calculus, and two semesters of English. Normally the required courses are completed by the end of the student's junior year. Individual medical or dental schools may impose additional admission requirements. Students desiring information regarding the requirements of specific schools can obtain it in 102 Baker Building.

### **NURSING**

Students interested in entering professional studies at a graduate level should plan a program that includes the following courses: General Biology with laboratory (8 hours); General Chemistry with laboratory (8 hours); Statistics (3 hours); English composition (3 hours); Humanities and Literature (6 hours); Psychology (6 hours); Sociology and/or Anthropology (6 hours).

### **SOCIAL WORK**

Students interested in pursuing professional studies in social work must complete a minimum of 24 hours in the social and behavioral sciences. The Mandel School of Applied Social Sciences of Case Western Reserve University requires in addition completion of a course in human biology.

## **INTEGRATED UNDERGRADUATE AND GRADUATE/PROFESSIONAL SCHOOL PROGRAMS**

### **B.S./M.ACC.**

Students who are candidates for the B.S. in accountancy and who wish to earn a master's degree in accountancy may apply to the B.S./M.Acc. program. Students in the program enroll during the senior year in 6 hours of M.Acc. courses that will serve toward satisfaction of both the B.S. and M.Acc. degree requirements. Following completion of the B.S., students in the program will enroll in the Weatherhead School of Management to complete an additional 30 hours of courses to satisfy M.Acc. degree requirements. For information, see Prof. Parker, 650 Enterprise Hall, Ext. 2065.

### **B.S./M.S.**

Students who are candidates for the B.S. in engineering, computer science, mathematics, natural sciences or statistics may apply to the Integrated B.S./M.S. Program. The program enables a student to earn up to 27 hours of graduate credit toward the M.S. while still an undergraduate and allows 9 hours of credit to be counted towards both the B.S. and M.S. degrees. Students generally do not do a senior project but instead begin work on their Master's thesis (plan A) or project (plan B) in their senior year. Students must apply and be accepted into the B.S./M.S. program before completing the last two semesters of their B.S. degree. Students wishing to pursue the M.S. in engineering or in computer science through the B.S./M.S. Program may obtain information from the Dean of Engineering, 307 Olin Building. Students wishing to pursue the M.S. in mathematics, a science, or statistics may obtain information in the Office of Undergraduate Studies, Baker 102.

### **EARLY DECISION FOR ADMISSION TO SCHOOL OF LAW**

This program is open to outstanding students who have completed two years of undergraduate study in the colleges and have taken the Law School Admission Test (LSAT). Up to four students per year will be granted a conditional commitment of admission to the CWRU School of Law. The commitment will be honored upon successful completion of a program planned individually with the Pre-Law Adviser.

### **INTEGRATED GRADUATE STUDIES (B.A./M.A. or B.A./M.S.)**

The Integrated Graduate Studies Program (IGS) is intended for gifted and highly motivated undergraduate students who are candidates for the B.A. and whose objective is a degree at the Master's or Doctor's level. By more closely integrating undergraduate and graduate studies, qualified students may be admitted to graduate study for their senior year and pursue the simultaneous completion of requirements for both the Master's and Bachelor's degrees. The baccalaureate will normally be awarded upon completion of a year of graduate study and attainment of a total of 120 semester hours of credit.

Eligibility requirements for admission to graduate school through IGS are:

1. 90 semester hours earned of which the last 60 hours must have been in residence at Case Western Reserve University
2. Completion of the Arts and Sciences General Education Requirements and two semesters of physical education
3. Completion of three quarters of the requirements for the major concentration.

### **PRE-PROFESSIONAL SCHOLARS PROGRAMS and THE 6-YEAR DENTAL PROGRAM**

These programs grant to a few outstanding freshman applicants to CWRU conditional commitments of admission to the appropriate professional school at CWRU. These commitments are honored upon successful completion of the requirements established by each professional school.

### **SENIOR YEAR *IN ABSENTIA***

Students of superior ability and attainment who are candidates for the B.A. and are offered admission to a medical or dental school other than those at Case Western Reserve University at the end of the junior year are eligible for an opportunity to shorten their entire course of studies by one year through the Senior Year *in absentia* privilege. Application for this privilege should be made during the second semester of the junior year through the Dean of Undergraduate Studies. A student granted the Senior Year *in absentia* privilege is permitted to substitute the work of the first year in a professional school for that required during the last year in the undergraduate college. Upon the satisfactory completion of the first year's work in the professional school, the student will be granted the B.A. from the College of Arts and Sciences. The privilege is extended to qualified students who attend medical schools in the United States or Canada approved by the Association of American Medical Colleges or dental schools in the United States approved by the American Association of Dental Schools.

Eligibility requirements:

1. 90 semester hours earned with the final 60 hours in residence at CWRU
2. Completion of the Arts and Sciences General Education Requirements and two semesters of physical education
3. Completion of three quarters of the requirements for the major concentration being pursued by the student
4. A cumulative grade point average of 3.2 or higher

## **SENIOR YEAR IN PROFESSIONAL STUDIES AT CWRU**

Students of superior ability and attainment who are candidates for the B.A. and who are admitted to professional studies in CWRU by the end of the junior year are offered an opportunity to shorten their entire course of studies by one year through the Senior Year in Professional Studies privilege. Application should be made during the second semester of the junior year through the Dean of Undergraduate Studies. This privilege is extended to students who are candidates for the B.A. and who attend the School of Dentistry, the School of Medicine, the Frances Payne Bolton School of Nursing, or the Mandel School of Applied Social Sciences of CWRU.

A student granted the senior year in professional studies privilege is permitted to substitute the work of the first year in a professional school for that required during the last year in the undergraduate college. Upon the satisfactory completion of the first year's work in the professional school, the student will be granted the bachelor's degree from the College of Arts and Sciences. Eligibility for this privilege requires:

1. Acceptance for professional studies in CWRU
2. Completion of the Arts and Sciences General Education Requirements for the student's baccalaureate degree and two semesters of physical education
3. Completion of three quarters of the major concentration requirements
4. Completion of 90 semester hours of credit of which the final 60 must have been in residence

## **SPECIAL UNDERGRADUATE PROGRAMS**

### **CO-OP PROGRAM**

Cooperative education offers the opportunity to students to find during the undergraduate careers full-time employment consistent with their major fields of study. This program is available to students pursuing degrees in accounting, management, engineering and all science departments except astronomy. For additional information contact Ms. Deborah Fatica, Office of Career Planning and Placement, 334 Pardee Hall, Ext. 4446. E-mail: [dx3@po.cwru.edu](mailto:dx3@po.cwru.edu).

### **DEAN'S APPROVED MAJOR**

Any student interested in developing a major for the B.A. of his/her own design may submit, before the end of the sophomore year, a proposed program for approval by the Deans' Committee. For additional information contact Dean Robinson (E-mail: [mxr5@po.cwru.edu](mailto:mxr5@po.cwru.edu)), Office of Undergraduate Studies, 102 Baker Building, Ext. 2928.

### **DISABILITIES SERVICES**

Students with documented learning disabilities, physical disabilities, chronic illness, or other documented disabilities are eligible for individualized services and arrangements through the Office of Educational Support Services. For additional information, contact Susan Sampson, Yost Hall 110, Ext. 5230 (TDD: 368-3059).

### **DUAL DEGREE**

To qualify for two undergraduate degrees, i.e., a B.A. and a B.S. degree, or two B.S. degrees, a student must satisfy all requirements for each degree, and complete for the second degree thirty semester hours of study beyond the hours required for the first degree. A student may, however, complete two or more majors within the 120 hour minimum requirement for the B.A. degree. A student desiring to be a candidate for two degrees should meet with a dean in the Office of Undergraduate Studies, Baker 102, to apply for dual degree candidacy.

### **EDUCATIONAL SUPPORT SERVICES**

The Office of Educational Support Services (Yost Hall 110, Ext. 5230) offers a variety of services including educational counseling, tutoring, study skills development and time management. The Plain Dealer Electronic Learning Center houses computers available to undergraduates, with priority given to commuters and to students participating in the Minority Scholars Program.

### **INTERNSHIPS**

The Internship Program offers the opportunity to students to find during the undergraduate careers part-time employment consistent with their major fields of study. This program is available to students pursuing degrees in accounting, management, and the arts and sciences. For additional information contact Heidi McCormick, Office of Career Planning and Placement, Pardee Hall 307, Ext. 4446.

### **JUNIOR YEAR ABROAD**

Full-time students who have earned a 3.0 grade point average are eligible to apply for the Junior Year Abroad. Up to thirty-six hours of credit may be granted for study at an established foreign university or for approved foreign study programs offered through accredited American universities. Programs must be approved by the dean and the student's major adviser. Interested students should contact Dean Margaret Robinson ([mxr5@po.cwru.edu](mailto:mxr5@po.cwru.edu)) or Ms. Claudia Anderson-Nhok ([cca2@po.cwru.edu](mailto:cca2@po.cwru.edu)) in the Office of Undergraduate Studies, Baker 102, Ext. 2928.

### **MINORITY ENGINEERS INDUSTRIAL OPPORTUNITY PROGRAM**

The CWRU minority engineering programs are part of a national effort to increase minority representation in the engineering profession. The undergraduate phase of MEIOP offers a variety of services to minority students who are pursuing engineering degrees at CWRU. MEIOP provides its participants with an academic support program that includes summer courses for incoming freshmen, study laboratories, workshops, counseling, and tutoring. Scholarships and summer employment opportunities are offered to students selected by the industrial sponsors of MEIOP. For information contact Dean Margaret E. Boulding, 116 Baker Bldg., Ext. 2904, E-mail: meb7@po.cwru.edu.

### **THE MINORITY SCHOLARS PROGRAM (MSP)**

The Minority Scholars Program (MSP) has been designed to increase significantly the number of minority (Native American, African American and Hispanic) students in CWRU's baccalaureate programs. The program includes intensified recruitment of qualified minority students; a pre-freshman summer session to facilitate students' adjustment to CWRU; academic and personal support during the students' undergraduate years; and guidance and encouragement toward graduate and professional education. Social and cultural activities to promote better understanding and appreciation of diversity at CWRU are also an important part of MSP. Only incoming freshmen are eligible for certain components of the program, but all minority students are encouraged to participate in MSP. For information contact Dean Margaret E. Boulding, 116 Baker Bldg., Ext. 2904, E-mail: meb7@po.cwru.edu.

### **RESEARCH AND INDEPENDENT STUDY**

Many departments offer qualified majors the opportunity to enroll for credit for independent study and research. Registration in those courses requires departmental approval. Students are responsible for observing departmental limitations on the number of credit hours that can be earned through enrollment for independent study. A directory of undergraduate research opportunities is available in the Office of Undergraduate Studies, Baker 102.

### **STUDENT COMMUNITY SERVICE**

Students have the opportunity to arrange volunteer placements that meet critical community needs in the areas of education, hunger and homelessness, the environment, and public health. The Office of Student Community Service maintains a comprehensive database of community service opportunities, provides information about coursework with a community service component, and assists students who are interested in curricular, co-curricular, Work-Study, or national service projects. For more information, contact Mr. Glenn Odenbrett, Office of Student Community Service, 105 Yost Hall, Ext. 6960, E-mail: gxo2@po.cwru.edu.

### **TEACHER CERTIFICATION**

Certification is offered at CWRU in Art, Music, and Speech-Language Pathology. Certification also is offered in Biology, Chemistry, English, French, Geology, History, Mathematics and Physics through a joint program with John Carroll University. For additional information contact Professor Timothy Shuckerow, 115 Wickenden Building, Ext. 2714.

### **UNDERGRADUATE SCHOLARS PROGRAM**

The Undergraduate Scholars Program permits a small number of highly motivated and responsible undergraduates to pursue individually designed programs of study leading to a Bachelor of Arts or a Bachelor of Science degree. Except for the 120 hours required for graduation, admission to the program as an Undergraduate Scholar exempts the student from the usual requirements of the colleges, and imposes instead a correspondingly greater personal obligation in defining and meeting intellectual and educational goals. Interested students should contact the Office of Undergraduate Studies, 102 Baker Building, Ext. 2928.

### **THE WASHINGTON SEMESTER**

Qualified students may earn a semester's credit through their satisfactory completion of work with source materials and at federal government institutions. This opportunity is available through either of two programs: American University's School of Social Science and Public Affairs or the Washington Center Program. Students make application through the Department of Political Science. Applications must have the approval of the Dean of Undergraduate Studies and the major adviser. For additional information contact the chairman of the Political Science Department, Mather House, Ext. 2424.

**Please see the Bulletin for further information on specific requirements for the special programs described above.**

## ACADEMIC REGULATIONS AND PROCEDURES

*It is each undergraduate's responsibility to know and to follow the academic regulations and procedures of the University. Complete information is included in the General Bulletin. Below are excerpts from the General Bulletin plus pertinent supplementary information.*

### ACADEMIC HONESTY

All students are expected to adhere to the standards of academic honesty consistent with the University Statement on Ethics (see page 2). Any work submitted by a student must represent his or her own efforts. Any student engaging in cheating, plagiarism, or any other acts of academic dishonesty will be subject to disciplinary action.

### ACADEMIC INFRACTIONS

If a faculty member suspects that an undergraduate student has presented the work of another as his or her own, or is otherwise guilty of academic dishonesty, the faculty member shall so advise the student and the departmental chair and consult with the Dean of Undergraduate Studies about the basis for those suspicions and appropriate disciplinary action. If the faculty member and dean agree that the evidence is not adequate to support a complaint, the matter will be dropped and the student will be so notified. If they do not agree to drop the matter, the following procedures will be followed:

If the infraction is a first offense, the dean and the faculty member may agree to leave the disposition of the matter to the faculty member. The student and the Dean of Undergraduate Studies will be notified in writing and a confidential record of the event and action shall be put on file in the Office of Undergraduate Studies.

Alternatively, following consultation with the Dean of Undergraduate Studies, under any of the following circumstances the faculty member will transmit a report of the infraction to the Dean of Student Affairs or his/her designate for judicial action:

1. The student pleads innocent to having committed an infraction, or pleads that the penalty is excessive.
2. It is the view of the faculty member and the Dean of Undergraduate Studies that the student's first offense is of a nature and seriousness to justify such a referral.
3. The records maintained by the Dean of Undergraduate Studies show the student to have been guilty of one or more previous academic infractions.
4. The faculty member, after consultation with the dean, prefers such a referral to the alternative of assuming responsibility for the disposition of the matter.

In the event of any of the circumstances listed above, the Dean of Student Affairs will convene a University Judicial Board to hear the case as promptly as is feasible and fair. When hearing a case dealing with an academic infraction the University Judicial Board shall consist of a representative of the Office of Undergraduate Studies, a representative of the Office of Student Affairs, and one student and one faculty member qualified to serve as a result of their participation in the Judicial Board training program. Should the Board find there was insufficient evidence to support the charge, the faculty member will be so informed and asked to evaluate the student's performance for the assignment in question by his/her normal grading practices. If the Board upholds the complaint of the faculty member, the panel will transmit notification of its finding and action to both the faculty member and the Dean of Undergraduate Studies for implementation. The action taken by the Judicial Board may include recommendations for a grade made to the faculty member and the imposition of additional disciplinary sanctions, as outlined in the Student Service Guide. In addition, the University is required to report to the funding agency the identity and misconduct of anyone, including a student, found guilty of falsification, fabrication or plagiarism in the performance of research that is receiving support from federal sources.

## **ADVANCED PLACEMENT, INTERNATIONAL BACCALAUREATE EXAMINATIONS AND CREDIT**

Students may earn degree credit on the basis of advanced examinations taken while in secondary school; examinations eligible for credit and/or advanced placement include, but are not limited to: College Board Advanced Placement Examinations and International Baccalaureate Higher Level Examinations. Determination of the criteria for granting credit and/or placement is made by the appropriate department. In assigning credit or granting advanced placement for credentials from outside the United States, the University is guided by the placement recommendations and grade equivalencies approved by the National Council on the Evaluation of Foreign Educational Credentials.

## **APPLIED ART AND MUSIC COURSES**

**Art:** Students may take studio courses for credit at The Cleveland Institute of Art only with authorization from Professor Timothy Shuckerow, CWRU Director of Art Studios, 115 Wickenden Building.

**Music:** Permits may be obtained at the Music Department in Haydn Hall to enroll for credit in Applied Music. Charges for private lessons will be covered by the full tuition rate for music and music education majors only. All other students will pay an additional fee.

## **ATTENDANCE**

Students are expected to attend classes regularly. Each instructor is free to determine the extent to which absences affect the final grades of students but should make the policy regarding attendance known at the start of the course. Instructors should report excessive absences to the Office of Undergraduate Studies. Instructors who judge a student's absences from class to be excessive may drop the student from the course with a grade of F. Instructors taking such action must notify the student's dean in writing. Students unable to attend classes because of illness should notify their instructors and make the appropriate arrangements directly with the instructor. The University Health Service and the Office of Undergraduate Studies do not provide medical excuses for class absence. Information concerning the policy of the Health Service and the Office of Undergraduate Studies is available in both the Office of Undergraduate Studies and the University Health Service.

## **COURSE CHANGES (DROP/ADD)**

After the original schedule has been submitted to the Registrar, course changes may be made during the first two weeks of classes in the Fall and Spring Semesters; the appropriate form (Drop/Add) must be used. Students who have declared a major should consult their major advisers about schedule changes. Schedule changes for students who have not declared a major must be approved and signed by a freshman adviser or dean. Changes in class sections do not require an adviser's signature.

## **COURSE PLACEMENT**

No credit will be granted for completion of any course in foreign language or mathematics that repeats the course level completed in high school. Freshmen who have questions regarding their eligibility to receive credit for foreign language or mathematics courses should see Dean Randall A. Williams.

## **ENROLLMENT STATUS**

Classification as a full-time student requires enrollment for 12 or more semester hours. Eligibility for campus housing, many forms of financial aid, and for participation on intercollegiate, varsity sports teams requires full-time status. Students registering for fewer than 12 semester hours are classified as part-time and charged tuition on the basis of the number of semester hours being taken.

## **FINAL EXAMINATIONS**

Final examinations normally are required in all courses and must be given during the final examination period at the time assigned by the Registrar; they may not be given during the final week of classes or on Reading Days. Any exception must be approved by the Dean of Undergraduate Studies.

No student will be required to take more than two final examinations on a single day. A student who has three final examinations scheduled for a single day should go to the Office of Undergraduate Studies and obtain the assistance of the Dean in arranging to take one of those examinations on an alternative day during the final examination period. Similarly, a student with conflicting examinations should seek the assistance of the Dean of Undergraduate Studies in arranging to have the time of one examination changed.

A student must explain immediately and in writing to the Dean of Undergraduate Studies an absence from a final examination. If the explanation is acceptable, the Dean will authorize the assignment of the grade Incomplete and the administration of a make-up examination by the instructor. In the event of an unexcused absence from a final examination, the instructor should assign the student a final grade that assumes a grade of zero on the final examination and is consistent with the grading policy established for the course.

## **FOREIGN LANGUAGE**

Credit earned for the first semester of a beginning foreign language will appear on the transcript but will not count towards the total hours required for the degree unless the second semester of the same language is completed as well.

## **OVERLOADS**

The normal full-time load is 14-18 semester hours. Continuing students may carry 19-21 hours if they have a cumulative average of 3.2 or better. To register for 22 or 23 hours a minimum average of 3.5 is required. Any schedule of more than 18 hours requires dean's approval. Graduating seniors will be approved for overloads if they need such a schedule in order to graduate at the end of the semester in question.

## **PETITIONS**

Students may request exceptions to collegiate regulations by petition to the Office of Undergraduate Studies. Please be reminded that ignorance of regulations that are published in the University General Bulletin, the Schedule of Courses, or this Handbook is not justification for an exception. Petition forms are available in Baker 102. Petitions are referred to the appropriate committee of the University Undergraduate Faculty.

## **PROFICIENCY EXAMINATIONS AND CREDIT**

Departments within each academic unit offering undergraduate programs may choose to offer students the opportunity to earn course credit in specific courses by proficiency examination. To qualify for proficiency examination credit for a course, the student's examination performance must demonstrate knowledge and skills at a level no lower than that of an average student who successfully completes the course. Upon notification from the academic department, the Office of Undergraduate Studies will direct the Office of the Registrar to post credit for the course on the transcript. The grade will be recorded as PR, and will not be included in a student's grade point average. *Note: Any student who receives proficiency credit for a course through a proficiency examination administered during a semester when the student is not registered for a full-time schedule (12 or more semester hours) at Case Western Reserve University is charged a fee equal to one-third of the present tuition charge for the course. No fee is charged if the student does not receive credit from the examination.*

## **REGISTRATION**

For continuing students, registration for the Fall Semester begins in April, and registration for the Spring Semester begins in November. Students registered before the billing cutoff dates (generally mid-July for fall registration, and early December for spring registration) will be billed by mail for tuition and fees. After the cutoff dates, students must be cleared through the Office of Student Accounts Receivable prior to registration. Complete registration instructions and regulations appear in the official Schedule of Classes, published by the University Registrar.

## **STANDARDS OF PROMOTION**

To the sophomore class	27 hours completed
To the junior class	60 hours completed
To the senior class	90 hours completed

## **STUDENT ACCESS TO RECORDS**

The records of all students are in the Office of Undergraduate Studies, Baker 102. Students may review their files in that office by appointment. A student must sign a request and present his/her I.D. card at the time of the appointment.

## **WITHDRAWAL FROM A COURSE**

With dean's approval, a student may withdraw from a course with a grade of W through the end of the eleventh week of the semester. After that date a student is not permitted to withdraw from a course unless, in the judgment of the dean, there are extenuating circumstances justifying a grade of W. Failure to attend class, or notification of only the instructor, does not constitute withdrawal from a course. Notice of withdrawal from a course must be signed by the student's dean and taken to the registrar on the appropriate form.

## **WITHDRAWAL FROM THE UNIVERSITY**

To withdraw from the University during a semester or session, a student must complete in the Office of Undergraduate Studies an official withdrawal form. If unable to complete the withdrawal in person, the student must send written notification to the Office of Undergraduate Studies. If the withdrawal is necessary for reasons of health, a statement from the student's physician to the University Health Service may be required as a condition of readmission. Grades of WD will be assigned in all courses in which a student is registered at the time of withdrawal, provided that a student follows the procedures stated above. Failure to attend classes, or notification of instructors only, does not constitute withdrawal from the University. A student who ceases to attend or otherwise participate in courses without officially withdrawing will be assigned the grade F for each course in which he or she is enrolled.

Students who do not plan to return for the following semester are asked to notify the Office of Undergraduate Studies (Baker 102) in person or in writing.

## GRADES

Grades at Case Western Reserve University are issued on the following scale with good standing based on the requirement of a 2.0 average for graduation. Academic averages are computed by dividing the number of quality points earned by the number of hours attempted, excluding transfer credit and courses graded P.

<u>Grade</u>	<u>Quality points per hour</u>
A (Excellent)	4
B (Good)	3
C (Fair)	2
D (Passing)	1
F (Failure)	0 (This grade will be given for academic failure as well as failure to attend class without formally withdrawing.)
I	Incomplete
W	Withdrawal from a class
WD	Withdrawal from all classes during a given semester
P	Passing in a Pass/No Pass course
NP	Not passing in a Pass/No Pass course
R	For courses which extend over more than one semester
AD	Audit
RPT	Repeated in later semester for evaluative grade

### GRADE OF INCOMPLETE

**Assignment of the Incomplete Grade:** The Incomplete grade (I) is assigned by and at the discretion of the instructor when: a) there are extenuating circumstances, explained to the instructor before the assignment of the grade, which clearly justify an extension of time beyond the requirements established for and met by other students in the class, and b) the student has been passing the course and only a small segment of the course, such as a term paper, remains to be completed. It is the student's responsibility to notify the instructor of the circumstances preventing completion of all assigned work. In the absence of notification or adequate justification the instructor has the authority to assign the student a final grade that assumes a failing grade for the missing work. An Incomplete grade should not be assigned when:

- a) a student has been absent for much of the semester and/or has done little of the work required for a course, or
- b) because a student is absent from a final examination, unless the dean has authorized the grade.

**Changing the Incomplete Grade:** The instructor shall submit to the Registrar a final evaluative grade to replace the Incomplete upon completion of the work outstanding by a date established for the student by the instructor. The amount of additional time allowed the student should serve to accommodate the student while being fair to other students in the course. It may be no more than a few days or weeks and, at the extreme, it should not extend past the eleventh week of the session following the one in which the Incomplete grade was received. In certain cases (such as students on probation) the dean may establish an earlier date for completion of courses with Incomplete grades. When a student fails to submit the work required for removing the Incomplete by the date established, the instructor shall transmit to the Registrar a final grade that assumes a failing performance for the missing work. In the absence of the assignment of a grade by the instructor the Registrar will convert the I to F when the deadline for making up Incomplete grades from a previous semester has passed.

## AUDIT

A student may audit a course with the dean's or adviser's approval and the consent of the instructor of the course. An auditor receives no credit for the course. Registration in a course cannot be changed from audit to credit or the reverse after the end of the drop/add period. However, a student may take for credit a course he or she audited in an earlier semester. At the beginning of the course, the student and instructor should reach agreement regarding the requirements to be met for a grade of AD. The grade of AD is entered on the student's transcript if approved by the instructor of the course. If the instructor does not approve the grade AD, the enrollment is not posted on the transcript.

## PASS/NO PASS

Courses elected on a Pass/No Pass basis and completed with a grade of D or higher will be entered with the grade P on a student's transcript. Courses taken Pass/No Pass and for which a grade of F is earned will be entered on the transcript with the letter grade NP. Courses completed with letter grade P under this option will be counted for credit toward the baccalaureate. Courses completed with the grade NP do not earn credit. Courses completed with grades P and NP are not included in computing the grade point average.

The Pass/No Pass Option is subject to the following regulations:

1. The Pass/No Pass Option is exercised during the last three days on which classes are scheduled.
2. It is available only during regular Fall and Spring semesters to full-time students who are in good standing.
3. It can be exercised for only one course during any semester.
4. It cannot be used for courses being taken for satisfaction of core or general education requirements.
5. It cannot be used for courses taken for the satisfaction of requirements of a major or minor concentration.
6. Courses offered only on a Pass/No Pass basis with the approval of the curriculum committee do not affect the student's use of the Pass/No Pass Option.
7. Instructors are not notified of a student's use of this option. They are required to submit evaluative grades for all students and these are converted to Pass/No Pass in the Registrar's Office. The meaning of the P and NP will be noted on the transcript.

## COURSE REPETITION

A student desiring the opportunity to repeat a course because of dissatisfaction with the quality of an earlier performance is eligible to do so, but must advise the Office of Undergraduate Studies of his/her intention by completing a Course Repetition Form. Upon completion of the repeated course at CWRU for an evaluative grade - A, B, C, D, or F - the grade received for the earlier enrollment will be replaced by the designation RPT and will no longer be computed in either the semester or cumulative grade point averages. The only grade posted and averaged for a course on the student's record will be that resulting from the most recently completed enrollment in that course. This option may be exercised subject to the following conditions:

1. The repetition must occur within one calendar year of the previous enrollment or, for courses that are not offered annually, in the next semester in which the course is offered.
2. A student may not use the Pass/No Pass option in a course that is being repeated.
3. An academic action that occurred under the earlier grade is neither reversed nor removed from the record as a result of a change in the semester or cumulative averages that results from the repetition of one or more courses.

**CAUTION:** *Students who are the recipients of any form of federal financial aid (grants, loans, work study, etc.) and use the RPT Option in order to repeat a course that was passed previously must enroll for a minimum of 12 credits for which credit had not been earned previously.*

**GRADE REPORTS AND TRANSCRIPTS**

The Registrar provides to the student and the Office of Undergraduate Studies a copy of each student's grades for each semester. Students requiring copies of their transcripts must request those at the Transcript Office in Pardee Hall. The University considers the grades earned by a student and other information about the student's performance at the University confidential and will release such information only upon written request by the student. Transcripts will not be issued to or on behalf of students who have not discharged all obligations to the University.

## ACADEMIC STANDING REGULATIONS

### GOOD STANDING

*The Freshman Year:* For the first two semesters of full-time enrollment students who are beginning their college studies will earn credit and grades only for those courses completed with a grade of D or higher. Any courses for which a grade of F or W is assigned will not be included in the computation of the grade point average and will not be posted on the transcript. This grading policy is not available to part-time or transfer students and does not apply to the summer session. In order to maintain good standing a freshman must earn at CWRU a minimum of 9 hours and an average of 1.70 or higher in the first semester and a total of 21 hours with a cumulative average of 1.75 or higher by the end of the second semester of full-time enrollment.

*Thereafter:* Following the freshman year grades of F will be posted on the transcript and will be used in the computation of the grade point average. Following the freshman year, the requirements for good standing are:

1) A semester grade point average of 1.75 or higher

and

2) a cumulative grade point average as follows:

a) for students with 22-40 hours earned, a cumulative grade point average of 1.80

b) for students with 41-59 hours earned, a cumulative grade point average of 1.90

c) for students with 60-89 hours earned, a cumulative grade point average of 1.95

d) for students with 90 or more hours earned, a cumulative grade point average of 2.0

Students with incomplete grades may be placed on "probation (incomplete)" as described below.

Part-time and transfer students will be subject to the cumulative average requirements that are consistent with their hours earned.

### PROBATION

Students who, at the end of any semester, fail to maintain the standard of performance required for good standing as specified above will be placed on probation. Students placed on probation are ineligible to represent the University in intercollegiate activities and may not hold an elective or appointed office or committee chairmanship in any campus organization. There are two categories of probation:

1. *Academic Probation:* Students will be placed on academic probation for failure to achieve the standards of performance specified above. When placed on academic probation students will be required to meet a standard of improvement established for individual students by the colleges. They are normally eligible for a maximum of two consecutive semesters of probation for the purpose of restoring themselves to good standing. However, the second semester of probation will be granted only in those cases where during a first semester of probation progress has been made toward achieving good standing.

2. *Probation (incomplete):* A student will be placed on Probation (Incomplete) if he/she has incomplete grades which if converted to F's would result in the student's being placed on academic probation. Once the incompletes are converted to grades, the student shall be restored to good standing or placed on academic probation as determined by the semester and/or cumulative grade point average that results.

## **ACADEMIC STANDING REGULATIONS (continued)**

### **SEPARATION**

Students on academic probation who fail to meet the standard of improvement established by the colleges will be eligible to be separated from the colleges for at least two academic sessions, including the summer session.

*A student is eligible for separation without a semester of probation for either of the following reasons:*

1. the student's semester grade point average is less than 1.0
2. the student has not earned more than a total of 18 credit hours in two consecutive semesters of enrollment for full-time study.

### **INELIGIBLE TO REGISTER**

Students on probation will be declared "ineligible to register" when they have Incomplete grades which if averaged as F make them eligible for separation. Such students will be required to finish the incomplete courses with grades that justify their retention before they will be allowed to continue in the colleges.

### **RESTORATION TO GOOD STANDING**

Students will be restored to Good Standing at the end of their semester of academic probation if they have earned at least 12 hours of credit with a semester grade point average of 1.75 or higher and have attained the cumulative grade point average required for good standing (see above).

### **READMISSION**

Students separated for reasons of scholarship may petition for readmission after two regular sessions have elapsed. In determining the period of separation, summer session is considered a regular session. Students readmitted after being separated for reasons of academic performance will retain earned credit only for those courses passed with a grade of C or better. Readmitted students do not retain quality points earned before separation, and the cumulative grade point average subsequent to readmission will be computed solely on the basis of work completed following readmission. Students readmitted after being separated must thereafter maintain good academic standing. A readmitted student who performs below the level required for good standing will be eligible for permanent separation from the University. Students separated for reasons of academic performance may not offer for transfer credit work taken elsewhere during the two sessions after their dismissal unless such work has been specifically approved in advance by the academic dean.

**CRITERIA FOR SCHOLARSHIP RETENTION**  
**(effective June, 1997)**

**FULL-TUITION SCHOLARSHIPS,  
PRESIDENT'S AND PROVOST'S SCHOLARSHIPS**

At the end of each academic year, the records of all students holding full-tuition scholarships, President's Scholarships, or Provost's Scholarships will be reviewed by the deans in the Office of Undergraduate Studies and by the Committee on Academic Standing of the University Undergraduate Faculty. To have a scholarship renewed for the following academic year, a recipient is expected to satisfy two requirements: a minimum number of hours earned after enrolling at CWRU, and a minimum cumulative grade point average.

The minimum standards for continuation are as follows:

- a) Cumulative hours earned *after* matriculation at CWRU (*not including AP/IB/transfer or Pre-College Scholar credit earned prior to enrollment at CWRU*)

at the end of the first year	24 semester hours
at the end of the second year	54 semester hours*
at the end of the third year	84 semester hours*

\*for students participating in the co-op program, an appropriate adjustment is made in the number of hours expected

- b) A cumulative grade point average of 3.00.

**Note:** *No courses are eliminated from a student's record for the purpose of calculating the Scholarship g.p.a. The Scholarship g.p.a. is the student's cumulative g.p.a., unless the student has used the Repeat Option. If a scholarship recipient has used the Repeat Option for any courses, the original grades in courses for which the final grade has been replaced by RPT will be included in the computation of the cumulative average for the purpose of determining eligibility for scholarship continuation.*

If a scholarship recipient's achievement falls below the standard described above, the scholarship will be terminated.

Unless the scholarship recipient is participating in an approved off-campus program (Cooperative Education, Junior Year Abroad, or Washington Semester), the scholarship is automatically terminated when a recipient fails to enroll at Case Western Reserve University in a semester for which he/she has been awarded the scholarship.

In exceptional circumstances, the Committee on Academic Standing will continue a scholarship for a student whose achievement or whose attendance does not meet the standards outlined above. It is the student's responsibility to write to the Committee on Academic Standing, c/o the Office of Undergraduate Studies, *before June 1*, to inform the committee of any special circumstances which may have affected performance and/or attendance during the preceding academic year, and to request special consideration for continuation of a scholarship.

**PROVOST'S SPECIAL SCHOLARSHIPS**

Recipients of Provost's Special Scholarships must maintain academic good standing to be eligible for continuation of their scholarships.

**NOTE: Once a scholarship has been terminated, it cannot be reinstated.**

## ACADEMIC HONORS

### DEAN'S HONOR LISTS

The Dean's Honor Lists consist of the names of those undergraduate students who have distinguished themselves by achieving during the previous semester the grade point averages required with a minimum of 12 hours earned and who have no Fs, NPs, or Incompletes during the same period. Students with a grade point average of 3.6 or higher will be placed on the Dean's High Honors List. Students with a grade point average of at least 3.2 but less than 3.6 will be placed on the Dean's Honors List.

### COMMENCEMENT HONORS

Degrees with distinction are awarded to those students who, at the completion of a course of study, have attained the following quality point averages:

at least 3.2 but less than 3.5

at least 3.5 but less than 3.8

3.8 or higher

*cum laude*

*magna cum laude*

*summa cum laude*

Candidates for commencement honors must have:

1. completed a minimum of 54 hours for evaluative grades (A, B, C, D, F) in residence at the University
2. attained the required quality-point average in all work for which grades are averaged at the University.

### DEPARTMENTAL HONORS

A number of departments offer outstanding students the opportunity to complete the major concentration with departmental honors. See the departmental representative for information regarding a department's requirements for graduation with honors.

### PHI BETA KAPPA

Phi Beta Kappa, a national honor society, recognizes outstanding scholarship in the liberal arts and sciences. The Alpha Chapter of Ohio was established at Western Reserve College in 1847. Students may qualify for election to membership in the second semester of the senior year. A few outstanding students may be elected to membership as juniors.

### TAU BETA PI

Tau Beta Pi is a national honor society which recognizes full-time engineering students for outstanding scholarship, leadership, and service.

### MORTAR BOARD

Mortar Board is a national honor society which recognizes full-time senior students for outstanding scholarship, leadership, and service.

### DEPARTMENTAL AND COLLEGIATE AWARDS

At Honors Assemblies at the end of each spring semester, the University presents awards recognizing the outstanding achievement of individual students. The departmental awards are based on achievement in specific academic disciplines. Some of the departmental and collegiate awards are based on a combination of leadership, scholarship, and service. The collegiate awards for students with the best academic records take into account credit load, grades, and the proportion of courses taken for evaluative grades (i.e., not taken P/NP).

### FELLOWSHIPS AND SCHOLARSHIPS

Outstanding students may obtain information about national competitive scholarships (Goldwater, Truman, Rhodes, etc.) in the Office of Undergraduate Studies, Baker 102.

## STUDY AT OTHER COLLEGES

**After matriculation in Case Western Reserve University, students are permitted to earn no more than a total of fifteen semester hours at other accredited colleges or universities either by cross registration or transient registration.** Permission of a dean in the Office of Undergraduate Studies must be obtained in advance if the student wishes to enroll elsewhere. Further, if a student wishes to take elsewhere a course that will serve toward satisfaction of major or minor requirements it must also be approved by the departmental chair or representative. Credit earned elsewhere after matriculation in the colleges is not applied toward the residence requirement of a minimum of 60 hours earned in the colleges. Forms requesting permission for study at other institutions are available in Undergraduate Studies.

### CROSS REGISTRATION

Full-time undergraduate students at Case Western Reserve University may register without payment of tuition at Baldwin-Wallace College, The Cleveland Institute of Art, The Cleveland Institute of Music, Cleveland State University, Cuyahoga Community College, David Myers College, Hiram College, John Carroll University, Lake Erie College, Lorain County Community College, Notre Dame College of Ohio, Oberlin College, or Ursuline College for one course per semester if that course is not offered at Case Western Reserve University (see above for credit limitation). The opportunity for Cross Registration is available only during the Fall and Spring semesters. Cross Registration Forms are available in the Office of Undergraduate Studies, Baker 102 and must be completed and approved no later than the final day of CWRU's drop/add period. Seniors may not cross-register in the final semester preceding their graduation.

### SUMMER SCHOOL

Students are permitted to earn no more than a total of 15 semester hours in other accredited colleges or universities after matriculation in Case Western Reserve University. Students will not normally be permitted to take elsewhere in Cuyahoga County courses offered at Case Western Reserve University. Exceptions to this policy will be permitted only in the event of significant extenuating considerations. Students who desire the opportunity to take elsewhere in Cuyahoga County a course being offered at CWRU must petition the Office of Undergraduate Studies in advance for permission to do so.

1. Transient work may be taken at another institution only with permission obtained in advance from the Office of Undergraduate Studies. ***Course descriptions must be provided with the request for permission.***
2. Institutions must be accredited.
3. Students must be in good standing. If you are placed on probation between receiving permission and the start of the term in which you plan to enroll, you are to assume that you are no longer eligible to enroll for and receive transfer credit for this work. Students on probation require special approval and should contact the Office of Undergraduate Studies.
4. Students may register for no more than 12 semester hours of credit. One quarter hour equals two-thirds of one semester hour.
5. Students may transfer credit only for courses taken in programs at which a semester's work is done in not less than four weeks.
6. Grades earned elsewhere for transferable work will not be recorded on your transcript or included in your average for work taken at Case Western Reserve University.
7. Credit earned elsewhere after matriculation is not applied toward the minimum of 60 hours required in residence at Case Western Reserve University.
8. Courses which do not have comparable or equivalent counterparts offered for credit at Case Western Reserve University require approval of the Dean.

### **SUMMER SCHOOL (continued)**

9. Acceptability of courses required for satisfaction of major or minor requirements must be determined by the faculty adviser from the department in question.
10. Students who have not declared a major should consult their freshman adviser or dean about the choice of courses applicable to the degree.

### **TRANSFER CREDIT**

Students may receive credit by transfer from another accredited college, university, or technological institute in the United States or from institutions of higher education outside the United States under the following conditions:

1. At the time of admission to CWRU upon presentation of an official transcript from each institution previously attended. Credit will be awarded for courses equivalent or comparable to those offered by the University and completed with a grade of C or better. Any such courses taken prior to the student's graduation from high school must be listed in the college's catalog among courses offered for degree credit to the college's undergraduates, taken in the company of college students, and organized and taught by college faculty. The allocation of transfer credit is determined by the Office of Undergraduate Studies in consultation with the appropriate department.
2. After enrollment in the University, only when approval has been secured in advance from the Office of Undergraduate Studies. After matriculation in the University, undergraduates are not permitted to earn more than 15 semester hours as transient students at other accredited institutions. Credit earned elsewhere after matriculation is not applied toward the 60 hour minimum required in residence.

Credit is not awarded for work done at an unaccredited institution in the United States except by proficiency examination in those departments of Case Western Reserve University offering that opportunity. The award of transfer credit for work done at institutions outside the United States is subject to departmental evaluation and to the recommendations of the National Council on the Evaluation of Foreign Credentials.

A student dismissed for poor scholarship from any institution cannot receive credit for courses taken in the first two sessions after that dismissal without prior permission of the Dean of Undergraduate Studies.

Grades for courses taken at other institutions will not be entered on the student's record nor will they be computed in the student's grade point average.

### **RESERVE OFFICER TRAINING CORPS (ROTC)**

Reserve Office Training Corps (ROTC) programs are available through cooperative arrangements with the University of Akron, for Air Force ROTC, and with John Carroll University, for Army ROTC. Participating CWRU students do not receive academic credit at CWRU for ROTC courses, but may be exempted from the undergraduate physical education requirement. ROTC scholarships are available on a competitive basis. Information about courses, registration, and scholarships may be obtained from:

Department of Aerospace Studies  
The University of Akron  
Akron, OH 44325-0009  
telephone: (330) 972-7653

Department of Military Science  
John Carroll University  
University Heights, OH 44118-4581  
telephone: (216) 397-4421

# Academic Calendar 1997-1998

## FALL SEMESTER, 1997

August 21	Arena Registration
August 25	Classes begin; Drop/Add begins; Late Registration begins
August 26	Late Fee (\$25) begins
September 1	Labor Day Holiday
September 5	Drop/Add ends; Late Registration ends Deadline Credit/Audit (UNDG), cross registration approval
October 20-21	Fall Break
October 20	Mid-Term Grades due (UG)
November 7	I-Grades due Last day to withdraw from a course with a grade of W
November 10	Open registration for Spring begins
November 27, 28	Thanksgiving Holidays
December 3,4, 5	Pass/NoPass—Submit form in Baker 102
December 5	Last Day of Classes
December 8, 9	Reading Days
December 10	Final Exams begin
December 17	Final Exams end
December 19	Final Grades Due by 12:00 noon
January 16, 1998	Fall Awarding of Degrees

## **SPRING SEMESTER, 1998**

January 8	Arena Registration begins
January 12	Classes begin; Drop/Add begins; Late Registration begins
January 13	Late Fee (\$25) begins
January 19	Martin Luther King Jr. Holiday
January 23	Drop/Add ends; Late Registration ends Deadline Credit/Audit (UNDG), cross registration approval
March 9	Mid-Term Grades due (UNDG)
March 9-13	Spring Break
March 27	I-Grades due (UNDG) Last day to withdraw from a course with a grade of W
April 14	Open registration for Fall begins
April 20	Open registration for Summer begins
Apr 23,24,27	Pass/NoPass—Submit form in Baker 102
April 27	Last Day of Classes
April 28/29	Reading Days
April 30	Final Exams begin
May 7	Final Exams end
May 9	Final Grades due by 12:00 noon
May 17	University Commencement

## **SUMMER SEMESTER, 1998**

June 1	Classes Begin
July 3	Independence Day Holiday
July 27	Classes End
July 29	Final Grades Due 12:00 noon
August 14	Summer Awarding of Degrees