

**HANDBOOK FOR UNDERGRADUATE STUDENTS
CASE WESTERN RESERVE UNIVERSITY
1999 - 2000**

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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, 1999 or Spring/Summer, 2000 must fulfill the degree requirements as described in this handbook.

Students who matriculated in Case Western Reserve University prior to Fall, 1999 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 conduct -- the ties of trust which bind the university community together.

GENERAL REQUIREMENTS FOR ALL BACHELOR'S DEGREES

Students matriculating in fall, 1999, spring, 2000, or summer, 2000, must complete degree requirements as described in this handbook. Students who matriculated prior to fall, 1999, 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:

- A. 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;
- B. Complete a course of studies with a cumulative grade point average of no less than 2.00 for work taken at Case Western Reserve University;
- C. 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;
- D. 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:

1. Arts and Sciences General Education Requirements (page 11)
Required for the Bachelor of Arts (B.A.) and the following Bachelor of Science (B.S.) degrees: Applied Mathematics, Art Education, Astronomy, Biochemistry, Biology, Chemistry, Geological Sciences, Mathematics, Music Education, Nutrition, Nutritional Biochemistry and Metabolism, Physics, and Statistics.
2. Engineering Core Curriculum (page 56)
Required, for the Bachelor of Science in Engineering (B.S.E.) degree. Required, with specific course exceptions, for the Bachelor of Science (B.S.) degree in Computer Science.
3. School of Nursing General Education Requirements (page 67)
Required of all candidates for the Bachelor of Science in Nursing (B.S.N.) degree.
4. Weatherhead School of Management General Education Requirements (page 69) Required of students who are candidates for the Bachelor of Science (B.S.) degree 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 2.00. 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 of the Engineering Core, 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 and the Engineering Core.
4. An engineering student who chooses to do so may, by taking work that goes beyond the requirement for a three-course sequence in the humanities or social sciences, complete a minor concentration in either of these areas, and count towards the 21 hour humanities/social sciences requirement up to 12 hours of courses taken for the minor. See minor concentrations on the following page.

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 ten or more courses (required) * = available only as 2nd major for B.A.; may be sole major

Minor - program of five or six courses (optional) for B.A. student who also completes B.S.

Sequence - three courses (required for degrees based on Engineering Core):

HA - Humanities and Arts SS - Social Sciences

Foundation - for each degree/major a student must complete the foundation curriculum required for that degree/major: A&S = based on A&S GER EC = based on Engineering CORE WSOM= based on WSOM GER

CODE	SUBJECT (DEGREE PROGRAM, page)	AVAILABLE AS	FOUNDATION FOR DEGREE/MAJOR
ACC	ACCOUNTING (BS, p. 71)	major or minor	WSOM
EAR	AEROSPACE ENGINEERING (BSE, p. 58)	major	EC
AMS	AMERICAN STUDIES (BA, p. 14)	major*, minor or HA sequence	A&S
ANT	ANTHROPOLOGY (BA, p. 15)	major, minor or SS sequence	A&S
APM	APPLIED MATHEMATICS (BS, p. 40)	major	A&S
ARE	ART EDUCATION (BS, p. 16)	major	A&S
ARH	ART HISTORY (BA, p. 18)	major, minor or HA sequence	A&S
ARS	ART STUDIO (p. 17)	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 (BSE, p. 58)	major or minor	EC
ECE	CHEMICAL ENGINEERING (BSE, p. 59)	major or minor	EC
CHE	CHEMISTRY (BA or BS, p. 23)	major or minor	A&S
CHS	CHILDHOOD STUDIES (p. 24)	minor	--
CHI	CHINESE (p. 25)	minor or HA sequence	--
ECI	CIVIL ENGINEERING (BSE, p. 60)	major or minor	EC
CLS	CLASSICS (BA, p. 25)	major, minor or HA sequence	A&S
COS	COMMUNICATION SCIENCES (BA, p. 26)	major, minor or SS sequence	A&S
CLT	COMPARATIVE LITERATURE (BA, p. 27)	major, minor or HA sequence	A&S
ECM	COMPUTER ENGINEERING (BSE, p. 61)	major or minor	EC
CMP	COMPUTER SCIENCE (BA, p. 27)	major or minor	A&S
CMP	COMPUTER SCIENCE (BS, p. 61)	major or minor	EC
ECO	ECONOMICS (BA, p. 28)	major, minor or SS sequence	A&S
EAP	ELECTRICAL ENGR. (BSE, p. 62)	major or minor	EC
EGR	ENGINEERING - undesignated (BSE, p. 63)	major	EC
EPH	ENGINEERING PHYSICS (BSE, p. 63)	major	EC
EGL	ENGLISH (BA, p. 29)	major, minor or HA sequence	A&S
GNV	ENVIRONMENTAL GEOLOGY (BA, p. 33)	major	A&S
EST	ENVIRONMENTAL STUDIES (BA, p. 31)	major* or minor	A&S
EFT	FLUID AND THERMAL ENGR (BSE. p. 64)	major	EC
FRC	FRENCH (BA, p. 32)	major, minor or HA sequence	A&S
FRS	FRENCH STUDIES (BA, p. 33)	major, minor or HA sequence	A&S
GEO	GEOLOGICAL SCIENCES (BA or BS. p. 34)	major or minor	A&S
GEM	GERMAN (BA, p. 34)	major, minor or HA sequence	A&S
GES	GERMAN STUDIES (BA, p. 35)	major	A&S
GER	GERONTOLOGICAL STUDIES (BA, p. 35)	major*, minor or SS sequence	A&S
HST	HISTORY (BA, p. 36)	major, minor or HA sequence	A&S

CODE	SUBJECT (DEGREE PROGRAM, page)	AVAILABLE AS	FOUNDATION
HSP	HISTORY AND PHILOSOPHY OF SCIENCE AND TECHNOLOGY (BA, p. 37)	major	A&S
HSS	HISTORY OF TECHNOLOGY AND SCIENCE (p. 37)	minor or HA sequence	--
HDE	HUMAN DEVELOPMENT (p. 37)	minor or SS sequence	--
IST	INTERNATIONAL STUDIES (BA, p. 38)	major	A&S
JAP	JAPANESE (p. 38)	minor or HA sequence	--
JPS	JAPANESE STUDIES (BA, p. 39)	major	A&S
MGT	MANAGEMENT (BS, p. 72)	major	WSOM
MID	MANAGEMENT INFORMATION & DECISION SYSTEMS (p. 73)	minor	--
EMS	MATERIALS SCI. & ENGR (BSE, p. 64)	major or minor	EC
MAT	MATHEMATICS (BA or BS, p. 39)	major or minor	A&S
EMC	MECHANICAL ENGR (BSE, p. 65)	major	EC
MUS	MUSIC (BA, p. 41)	major, minor or HA sequence	A&S
MUE	MUSIC EDUCATION (BS, p. 42)	major	A&S
NAT	NATURAL SCIENCES (BA, p. 43)	major* or minor	A&S
NUR	NURSING (BSN, p. 68)	major	FPB
NTR	NUTRITION (BA or BS, p. 44)	major or minor	A&S
NBM	NUTRITIONAL BIOCHEMISTRY & METABOLISM (BA or BS, p. 45)	major	A&S
PHI	PHILOSOPHY (BA, p. 45)	major, minor or HA sequence	A&S
PHY	PHYSICS (BA or BS, p. 46)	major or minor	A&S
POS	POLITICAL SCIENCE (BA, p. 47)	major, minor or SS sequence	A&S
POL	POLYMER SCIENCE & ENGR.(BSE, p. 65)	major or minor	EC
PAR	PRE-ARCHITECTURE (BA, p. 18)	major*, minor or HA sequence	A&S
PSY	PSYCHOLOGY (BA, p.47)	major, minor or SS sequence	A&S
PPY	PUBLIC POLICY (p. 48)	minor	--
RLG	RELIGION (BA, p. 48)	major, minor or HA sequence	A&S
RUS	RUSSIAN (p. 49)	minor or HA sequence	--
SOC	SOCIOLOGY (BA, p. 49)	major, minor or SS sequence	A&S
SPA	SPANISH (BA, p. 50)	major, minor or HA sequence	A&S
SPM	SPORTS MEDICINE (p. 51)	minor	--
STA	STATISTICS (BA or BS, p. 51)	major or minor	A&S
ESC	SYSTEMS/CONTROL ENGR. (BSE, p. 66)	major or minor	EC
THR	THEATER/Acting/Dance/Tech. (BA, p. 52)	major, minor or HA sequence	A&S
UGS	UNDERGRADUATE SCHOLAR (BA or BS, p. 83)	individually designed major	--
WMN	WOMEN'S STUDIES (BA, p. 54)	major*, minor, HA or SS sequence	A&S

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.

Program	Representative	Office	Phone	E-mail
ACC BS	Prof. Fogarty	663 Enterprise	3938	tjf
AIN Minor	Prof. Ernst	508 Olin Building	2839	ernst@alpha.ces.cwru.edu
AMS BA	Prof. Carvajal	311A Clark Hall	2220	csc3
ANT BA	Prof. Jenkins	211 Mather Memorial	2630	jhj4
ANT BA	Prof. Korbin	210 Mather Memorial	2278	jek7
ARE BS	Prof. Shuckerow	115 Wickenden Bldg.	2714	txs10
ART BA	Prof. Landau	103 Mather House	4119	ex13
ASI BA	Prof. Deal	105 Mather Memorial	2205	wed
AST BA/BS	Prof. Luck	414A Smith Bldg.	6697	rel2
BCH BA/BS	Prof. De Haseth	W447 Medical School	3684	pld2
BIO BA/BS	Dr. Rosenberg	105 Biology Bldg.	3558	mjr4
CHE BA/BS	Prof. Stuehr	106SB Millis Science	5099	jes6
CHI Minor	Prof. Lehir	204 Guilford House	2233	mx111
CHS Minor	Prof. Russ	109 Mather Memorial	2814	swr
CLS BA	Prof. Laing	402 Mather House	6026	drl2
CLT BA	Prof. Lehir	204 Guilford House	2233	mx111
CMP BA/BS	Prof. Ernst	508 Olin Building	2839	ernst@alpha.ces.cwru.edu
COS BA	Prof. Turkstra	412 Hearing & Speech	2470	lst2
EAP BS	Prof. Garverick	511 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. Crago	305 Wickenden	3977	pec3
ECE BS	Prof. Morrison	133 Smith Bldg.	4238	pwm5
ECI BS	Prof. Mullen	20G Bingham Bldg.	2423	rlm
ECM BS	Prof. Ernst	508 Olin Bldg.	2839	ernst@alpha.ces.cwru.edu
ECO BA	Prof. Bogart	400 Wickenden Bldg.	4296	wtb
EFT BS	Prof. Greber	417 Glennan Bldg.	6451	ixg2
EGL BA	Prof. Ferguson	215 Guilford House	2217	scf
EGR BS	Prof. Feke	312 Glennan Bldg.	8760	dlf4
EMC BS	Prof. Prah	418 Glennan Bldg.	2941	jmp
EMS BS	Prof. DeGuire	412 White Bldg.	6481	mrd2
EPH BS	Prof. Singer	225D Rockefeller	4017	kds4
ESC BS	Prof. Sreenath	608 Olin Bldg.	6219	nxs6
EST BA	Prof. McCall	211C Smith Bldg.	3676	plm4
FRC BA	Prof. LeHir	204 Guilford House	2233	mx111
FRS BA	Prof. LeHir	204 Guilford House	2233	mx111
GEO BA/BS	Prof. Banks	212 Smith Bldg.	3765	pob
GEO Ba/BS	Prof. McCall	211C Smith Bldg.	3676	plm4

Program	Representative	Office	Phone	E-mail
GEM BA	Prof. Daley	211 Guilford House	2303	mxd43
GER BA	Prof. Deimling	223C Mather Memorial	5173	gtd
GES BA	Prof. Daley	211 Guilford House	2303	mxd43
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	exp7
HST BA	Prof. Ledford	208 Mather House	4144	kxl15
IST BA	Prof. McHale	113 Mather House	2425	vem
JAP Minor	Prof. Hagiwara	307 Guilford House	6188	txh13
JPS Major	Prof. Hagiwara	307 Guilford House	6188	txh13
MAT BA/BS	Prof. Singer	307A Yost Hall	2892	das5
MGT BS	Prof. Previts	625 Enterprise Hall	2074	gjp
MGT BS	Mr. Fischer	341 Enterprise Hall	3856	jxf13
MID Minor	Prof. Lim	670 Enterprise Hall	4640	kh12
MUE BS	Prof. Ciepluch	302 Haydn Hall	2361	gxc6
MUS BA	Prof. Quereau	Haydn Hall	2412	qxq
NAT BA	Dr. Westin	102 Baker Bldg.	2928	jxw3
NBM BA/BS	Prof. Barkoukis	201 Dental School	2440	Hope1215@aol.com
NTR BA/BS	Prof. Cicirella	201 Dental School	2440	mmc3
NUR BSN	Dr. Roberts	School of Nursing	2541	blr4
PAR Minor	Prof. Shuckerow	115 Wickenden Bldg.	2714	txs10
PHI BA	Prof. McLarty	201 Guilford House	4476	cxm7
PHY BA/BS	Prof. Fickinger (Fall)	202 Rockefeller	4100	wjf
PHY BA/BS	Prof. Chottiner (Spring)	104D Rockefeller	4024	gsc2
POL BS	Prof. Hudson	337 Kent Hale Smith	6373	sdh6
POS BA	Prof. McHale	113 Mather House	2425	vem
PPY Minor	Prof. McHale	113 Mather House	2425	vem
PSY BA	Prof. Greene	124 Mather Memorial	6473	rlg2
RLG BA	Prof. Deal	105 Mather House	2205	wed
RUS Minor	Prof. Lehir	204 Guilford House	2233	mxl11
SOC BA	Prof. Deimling	223C Mather Memorial	5173	gtd
SOC BA	Prof. Hinze	223D Mather Memorial	8847	sxh3
SOC BA	Prof. Stoller	224 Mather Memorial	2638	eps3
SOC BA	Prof. Mattern	228 Mather Memorial	2703	jmm15
SPA BA	Prof. Nanfito	302 Guilford House	3071	jcn
SPM Minor	Prof. Gray	Veale Center	5280	nmg
STA BA/BS	Prof. Fitzgibbon	321 Yost Hall	2306	paf3
THR Drama	Prof. Albers (Spring)	Eldred Theater	5926	cla2
THR Drama	Prof. Borski (Fall)	Eldred Theater	5927	rxb33
THR Dance	Prof. Orlock	Eldred Theater	5923	jmo3
UGS BA/BS	Dean Dodd	Baker 102	2928	tmd6
WMN BA	Prof. Jenkins	238 Mather Memorial	2630	jhj4

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:

- A. A minimum of 120 semester hours earned.
 1. No more than 42 hours beyond the 100 level in any one department may be applied to the 120 hours total.
 2. The 120 semester hours must include at least 90 semester hours in arts and sciences. These credits may be drawn from those offered by the College of Arts and Sciences as well as those in economics, biochemistry, nutrition and computer science. (Students completing both a B.A. and B.S. degree are exempt from 6 hours of the 90 hour arts and sciences requirement for the B.A.)
- B. The General Education Requirements of the College of Arts and Sciences.
- C. A minimum of 30 semester hours of courses at the 300-400 level.
- D. 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 2.00. 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, including half the hours required in the major department.

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: Applied Mathematics, Art Education, 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:

- A. A minimum of 120-131 hours as specified by the requirements for each B.S. program.
- B. 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.
- C. A minimum of 30 semester hours of courses at 300-400-level.
- D. 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 2.00. 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, including half the hours required in the major department.

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 exempt 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).

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

STAT 201* or ANTH 319* or PSCL 282* (any of the above mathematics courses, or PHIL 201, or PSCL 375)

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

*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.

- 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 (ANTH 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 220)
CHEM 105 or CHEM 111 (CHEM 106)
GEOL 101 or 110 or 115 or 117 (second course from those listed here or GEOL 210 or 220)
PHYS 100 or 115 (116) or 121 (122) or 123 (124)
- 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; ESTD 387; GEOL 202; HSTY 151, 152, 201, 202, 395; PHYS/POSC 196; RLG 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 or 321* (MUSC 222 OR 322*)
THTR 123 or 124 (the other of these two)
 * For music majors only
- 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 117 (AMST 217)
CLSC 111 (CLSC 112, 202B, 302)
CLSC 112 (CLSC 111, 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 RLG 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)
CMPL 211 or 212 (the other of these two)
CMPL 290 or 291 (the other of these two)
ENGL 200 (ENGL 255 or 256)
Foreign Languages - any 200 or higher level course in a foreign language (any other 200 or higher level course in the same language)
GREK 201 or above except 395
LATN 202 or above except 395

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. Of the 9 hours, no more than 6 may be from a single department.

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, 326, 327, 328, 360B, 367, 370J, 386)

SOCI 113 (SOCI 204, 300, 302, 312, 349, 365)

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 220, 236, 332, 336)

COSI 109 (COSI 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, 369)

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;

ARTH 203;

CMPL 230, 250; 275;

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, 321;

PHIL 356;

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

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

SOCI 302, 326;

SPAN 303, 339, 342, 343;

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 11). Students who matriculated prior to fall, 1999 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 Christa Carvajal
311A Clark Hall, Ext. 2220
E-mail: csc3@po.cwru.edu

Major (for B.A.)

Hours: 36

A. Required Courses (6 hours)

AMST 117 and 217

B. Elective Courses (30 hours)

From an approved list of courses, 15 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 and approved by the Program Director.

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

NOTE: American 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 American Studies major.

For a student who completes a Bachelor of Science degree (B.S., B.S.E., or B.S.N.), American Studies may serve as the sole major for a B.A. degree.

Minor

Hours: 15

Five courses (15 hours), including AMST 117 and 217, 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 Engineering Core)

Hours: 9

AMST 117 and 217 plus one additional course selected in consultation with the Program Director.

ANTHROPOLOGY (ANT)

Academic Representatives:
Professor & Chair Melvyn Goldstein
238 Mather Memorial, Ext. 2265
E-mail: mcg2@po.cwru.edu

Concentrations for the major (for B.A.)

Hours: 36

A. Liberal Arts Anthropology Concentration

- 1) ANTH 102, 103
- 2) ANTH 319
- 3) At least one course dealing with a geographic area, such as:
ANTH 330, 331, 341, 352, 353, 356, 357
- 4) Approved Anthropology electives: 24 semester hours

B. Health Science Oriented Anthropology Concentration

Hours: 36

- 1) ANTH 102, 103, 215
- 2) ANTH 319
- 3) At least one course dealing with a geographic area, such as:
ANTH 330, 331, 341, 352, 353, 356, 357
- 4) At least three courses dealing with health-related topics, such as:
ANTH 301, 304, 306, 309, 318, 351, 359, 365, 369, 371, 373, 376, 393, 397
- 5) Approved Anthropology electives: 12 semester hours

C. Archaeology Concentration

Hours: 36

- 1) ANTH 102,103,107
- 2) ANTH 319
- 3) At least one course dealing with a geographic area such as:
ANTH 330, 331, 341, 352, 353, 356, 357
- 4) Three approved Archaeology courses selected from:
ANTH 202, 321, 330, 331, 333, 399, Summer Field Work
- 5) Four Approved Electives: 12 credits

D. Physical Anthropology Concentration

Hours: 36

- 1) ANTH 102, 103
- 2) ANTH 319
- 3) At least one course dealing with a geographic area such as:
ANTH 330, 331, 341, 352, 353, 356, 357
- 4) At least three courses dealing with Physical Anthropology, selected from:
ANTH 295, 301, 302, 369, 375, 377, 383, 393, 397
- 5) Approved Anthropology electives: 15 hours

Concentrations for the minor

Hours: 15

A. General Anthropology Minor

- 1) ANTH 102 and 103
- 2) At least one course dealing with a geographic area such as:
ANTH 330, 331, 341, 352, 353, 356, 357
- 3) Two approved electives: 6 semester hours

B. Health Science Oriented Anthropology Minor

Hours: 15

- 1) ANTH 102 and 103
- 2) One course dealing with a geographic area such as:
ANTH 330, 331, 341, 352, 353, 356, 357
- 3) Two courses dealing with health-related topics such as:
ANTH 301, 304, 306, 309, 318, 351, 359, 365, 369, 371, 373, 376, 393, 397

ANTHROPOLOGY (continued)

C. Archaeology Minor Hours: 15

- 1) ANTH 102, 103, 107
- 2) At least one course dealing with a geographical area such as:
ANTH 330, 331, 341, 352, 353, 356, 357
- 3) At least one approved Archaeology elective selected from:
ANTH 202, 321, 330, 331, 333, 399, Summer Field Work

D. Physical Anthropology Concentration Hours: 15

- 1) ANTH 102, 103
- 2) At least one course dealing with a geographic area selected from:
ANTH 330, 331, 341, 352, 353, 356, 357
- 3) At least two approved Physical Anthropology electives:
ANTH 295, 301, 302, 369, 375, 377, 383, 393, 397

Social Science Sequence (for B.S. based on Engineering Core) Hours: 9

ANTH 102 or 103

Two 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

E-mail: txs10@po.cwru.edu

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 2.50 cumulative grade point average and a total of 300 contact hours of clinical field-based experience are required. To complete successfully the teacher training program, a 3.00 grade point average must be maintained in professional education courses and an overall grade point average of 2.50 is required. In addition to these requirements, 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 Licensure for the Ohio Provisional Visual Arts Specialist (Pre-K-12) Licensure 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 Licensure will be awarded.**

ART EDUCATION (continued)

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
*A&S General Education Requirement: Global and Cultural Diversity	3.0
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
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 Engineering 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, 399

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 12

A. Art Studio

1. ARTH 101, 102 or two approved Art History electives
2. ARTS 101, 106

B. Photography

1. ARTH 101, 102 or two approved Art History electives
2. ARTS 220 plus one of the following: 320, 322

PRE-ARCHITECTURE (PAR)

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

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.

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

For a student who completes a Bachelor of Science degree (B.S., B.S.E., or B.S.N.), Pre-Architecture may serve as the sole major for a B.A. degree.

Concentration for the minor

Hours: 18

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

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 15

ARTH 101, 102 and ARTS 106, 302, 303

ART HISTORY (ARH)

Academic Representative:
Professor Ellen Landau
103 Mather House, Ext. 4119
E-mail: ex13@po.cwru.edu

Major (for B.A.)

- A. ARTH: 30-33 hours including Hours: 36
1. ARTH 101, 102 (6 hours)
 2. Six hours at 200-level recommended before the senior year
 3. ARTH 396 Majors Seminar (3 hours) recommended for the senior year
 4. 15-18 hours of electives in ARTH at the 300-level
- B. ARTS: 3-6 hours of ARTS courses selected in consultation with the adviser.

Two years of a foreign language (preferably German) recommended for those who intend to pursue professional interests in art history

ART HISTORY (continued)

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: ENGR 145 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 (replaces ARTH 396): ARTH 398 or CHEM 397 or EMSE 398

Concentration for the minor

Hours: 18

18 hours of Art History including ARTH 101, 102

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9

Any 3 Art History courses at the 100 or 200-level

ARTIFICIAL INTELLIGENCE (AIN)

Academic Representative:

Professor George W. Ernst

508 Olin Building, Ext. 2839

E-mail: ernst@alpha.ces.cwru.edu

Minor

Hours: 15

A. ENGR 131, ECES 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/ECES 375, 475, 478, 479, ECES 411, ECES/EEAP 484, 491, 591, EEAP 485, 489, 531, 589, ESCI 352, 450, PHIL 201, 306.

Track 2 - Cognitive Science Track

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

Humanities or Social Science Sequence*

Hours: 15

(for B.S. based on Engineering Core)

A. ENGR 131, ECES 391

B. Three 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
105 Mather House, Ext. 2205
E-mail: wed@po.cwru.edu

Major (for B.A.)

Hours: 34

- A. ASIA 110 or ASIA/HSTY 131
- B. At least 16 hours in an Asian language
- C. The remaining 15 hours selected in consultation with program adviser.

Minor

Hours: 18

- A. ASIA 110 or ASIA/HSTY 131
- B. 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 Engineering Core)

Hours: 9

- A. ASIA 110 or ASIA/HSTY 131
- B. 6 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, 325, 326, 331, 332
STAT 313

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 Pieter De Haseth
W447 Medical School, Ext. 3684
E-mail: pld2@po.cwru.edu

Cooperative Education Adviser:
Professor Menachem Shoham
W509 Medical School, Ext. 4665
E-mail: mxs10@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 approved technical electives in biochemistry (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 approved technical elective in biochemistry (3 hours)
- B. Additional required courses:
- 1) BIOL 110, 210, 211, 326
 - 2) CHEM 105, 106, 113; 223 and 224 (or 323 and 324); 301 and 302 (or 335 and 336); 321 and 322 (or 233, 234, and 304)
 - 3) ENGR 131
 - 4) MATH 121 (or 123); 122 (or 124); 223 (or 227); 224 (or 228)
 - 5) PHYS 121 (or 123), 122 (or 124), including laboratory, 221 (or 223)
 - 6) Statistics/data analysis elective (PHYS 250, ECES 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, 113, 223 (or 323), 224 (or 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
105 Biology Bldg., Ext. 3558
E-mail: mjr4@po.cwru.edu

Cooperative Education Adviser:
Professor Morris Burke
108A Biology Bldg., Ext. 6652
E-mail: mxb18@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
ENGR 131
MATH 125, 126 (or 121, 122, but 125, 126 preferred)
MATH 201 or 225 or an approved statistics course
PHYS 115, 116

Adolescent to Young Adult Licensure, Life Science:

- A. Completion of required Biology courses. For information, contact Dr. Martin Rosenberg, the department academic representative.
- B. Completion of required Education courses.
(see Education-Teacher Licensure Program on page 28)

NOTE: for more information about licensure programs, see Professor Phil Safford, adviser for the CWRU/John Carroll University Joint Program in Teacher Licensure.

BIOLOGY (continued)

Minor

Hours: 16

BIOL 110, 111, and 11 additional hours of biology, 6 of which 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: 123

- A. Chemistry courses required (46 hours):
CHEM 105, 106, 113
CHEM 323, 324; 321, 322
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 (40-41 hours):
MATH 121 (or 123), 122 (or 124), 223 (or 227)
MATH 224 (or 228) or STAT 312
PHYS 121, 122, 221
ENGR 131
One Biochemistry course
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.

CHEMISTRY (continued)

Adolescent to Young Adult Licensure, Physical Sciences:

- A. Completion of required courses in the physical sciences. For information, contact Dr. John Stuehr, the department academic representative.
- B. Completion of required Education courses. (see Education –Teacher Licensure Program on page 28).

NOTE: for more information about licensure programs, see Professor Phil Safford, adviser for the CWRU/John Carroll University Joint Program in Teacher Licensure.

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

CHILDHOOD STUDIES (CHS)

Academic Representative:

Professor Sandra Russ

109 Mather Memorial, Ext. 2814

E-mail: swr@po.cwru.edu

Minor

Hours: 15

Requires at least 15 hours of course work in at least two different departments

The following courses are accepted toward the minor:

PSCL 230, 390, 393, or 344; ANTH 306 or 309, COSI 313

Note: Courses taken for the student's major may not be counted towards the minor in Childhood Studies.

CHINESE (CHI)

Academic Representative:
Professor Marie-Pierre LeHir
204 Guilford, Ext. 2233
E-mail: mxl11@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 Engineering Core)

Hours: 9-12

- A. For students beginning study in Chinese at an introductory level:
CHIN 101, 102, 201
- B. For students beginning study in Chinese at the 200-level or higher:
A minimum of 9 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.

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.*

CLASSICS (continued)

Humanities Sequence (*for B.S. based on Engineering Core*)

Hours: 9

Most sequences should include CLSC 111, 112 and one course in either Greek or Roman culture. Three 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

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

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

Independent Study

CLSC 381 (majors only)

CLSC 395; GREK 395; LATN 395

COMMUNICATION SCIENCES (COS)

Academic Representative:

Professor Melanie Schuele

Hearing and Speech, Ext. 2470

E-mail: cms33@po.cwru.edu

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

A. Communication Studies

Hours: 33

COSI 100, 228, 236, 260, 332, 336, ENGL 204

and four of the following: COSI 109, 211, 220, 325, 313, 321, 345

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 and 336,

and three of the following: COSI 220, 228, 236, 332, 345

B. Communication Disorders: COSI 109 313, 325

and two of the following: COSI 211, 220, 321, 345

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

Hours: 9

A. Communication Studies: COSI 100 and any two of the following:

COSI 220, 228, 236, 260, 332, 336, 345

B. Communication Disorders: COSI 100 and any two of the following:

COSI 211, 313, 345

COMPARATIVE LITERATURE (CLT)

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

Major (for B.A.)

Hours: 34

- A. Either CMPL 211-212, CMPL 290-291 or ENGL 255-256
- B. 202 or the equivalent in a modern language taught at CWRU
- C. 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, Spanish, or Japanese

Minor

Hours: 15

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

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9

One of the following sequences (CMPL 211-212, CMPL 290-291 or ENGL 255-256) plus one 300-level literature course chosen from CMPL, ENGL, FRCH, GRMN or SPAN.

COMPUTER SCIENCE (CMP)

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

Major (for B.A.)

Hours: 49-51

- A. ENGR 131
- B. MATH 125, 126, 304
- C. ECES 233, 251, 281, 322, 337, 338, 340, 341
- D. Two technical electives; These courses must be ECES, MATH or STAT courses.

For B.S. program in Computer Science, see page 61.

Minor (based on Arts & Sciences General Education Requirements)

Hours: 18

ENGR 131
MATH 125 (or equivalent)
ECES 233, 251 plus one additional 3 hour ECES course

ECONOMICS (ECO)

Academic Representative and Sequence Adviser:
Professor Thomas Bogart
400 Wickenden, Ext. 4296
E-mail: wtb@po.cwru.edu

Major (for B.A.)

Hours: 30

- A. Required Courses (15 hours)
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

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 Engineering Core)

Hours: 9

ECON 102, 103 and one additional course approved by the sequence adviser.

Honors Program

Hours: 6

Juniors with a minimum grade point average of 3.30 in economics courses and a 3.00 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—TEACHER LICENSURE PROGRAM

Academic Representative:
Professor Timothy Shuckerow
Director of Teacher Licensure
115 Wickenden Bldg., Ext. 2714
E-mail: txs10@po.cwru.edu

Adviser for the CWRU/John Carroll
University Joint Program in Teacher Licensure
Professor Phil Safford
Mather House, Ext. 4155
E-mail: psafford@aol.com

Ohio teacher licensure can be attained by those undergraduate students who complete the approved curriculum of the Case Western Reserve University/John Carroll University Joint Program in Teacher Licensure. Adolescence/Young Adult Teacher Licensure is available in Integrated Language Arts (English major), Integrated Social Studies (History major), Integrated Mathematics (Mathematics major), Life Sciences (Biology major), and Physical Sciences (Chemistry or Physics major). Multi-age Licensure is available in French. The program requires 36 credit hours in professional education, 12 taken at Case Western Reserve University and 24 credit hours taken at John Carroll University.

EDUCATION—TEACHER LICENSURE PROGRAM (continued)

Teacher licensure programs are also offered in art education (see page 16) and music education (see page 42).

A 3.00 grade point average must be maintained in all professional education courses, and a cumulative GPA of 2.50 in all coursework is required to be recommended for Ohio teacher licensure. Completion of the University's program in education does not ensure that Ohio teacher licensure will be awarded. The Ohio Department of Education also requires that licensure applicants receive passing scores on the General Knowledge, Professional Knowledge, and Content Area subtests of the National Teachers' Examination and fingerprinting with a criminal background check by the Ohio Bureau of Criminal Identification. Once licensed, teachers can transfer their Ohio licensure to over 40 states. Students should contact individual state departments of education for details.

CWRU/John Carroll University Joint Program in Teacher Licensure:

- | | |
|--|-----------|
| A. Courses taken at Case Western Reserve University:
PSCL 101 (prerequisite for EDUC 304), EDUC 301, 304, 338 | Hours: 12 |
| B. Courses taken at John Carroll University:
EDJC 186, 255, 337, 427, 405S, 444S | Hours: 24 |

ELECTRONICS (EAP)

A minor in electronics is available to B.A. candidates through the Department of Electrical Engineering and Applied Physics. See page 62.

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

1. ENGL 200, 380
2. 24 additional hours of 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.

Adolescent to Young Adult Licensure, Integrated Language Arts:

- A. Completion of required Integrated Language Arts courses. For information, contact Professor Judith Oster
- B. Completion of required Education courses. (see Education – Teacher Licensure Program on page 28).

NOTE: for more information about licensure programs, see Professor Phil Safford, adviser for the CWRU/John Carroll University Joint Program in Teacher Licensure.

ENGLISH (continued)

Minor (for B.A.)

Hours: 15 above 100 level

Consult department adviser. ENGL 200 strongly advised.

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9

Any coherent sequence of three 200-300-level courses.

Students must consult the departmental adviser.

Honors Program

Hours: 36-37

To qualify for the B.A. with honors in English, students must achieve a minimum GPA of 3.5 in courses taken in the honors program. Students interested in the honors program should speak with an adviser in their freshman or sophomore year.

A. Foundations (6-7 hours)

1. ENGL 200
2. One 202-level (or equivalent) course in FRCH, GREK, GRMN, JAPN, LATN, SPAN, or another foreign language for which 300-level courses are available

B. Literary Studies: 27 hours of electives in literature (including film), at least 21 hours of which must be at the 300-level or above, including:

1. A minimum of six hours in pre-nineteenth century literature, chosen from among ENGL 312, 320, 323, 324, 326, 327, 328, or equivalent; and
2. A minimum of three hours in courses primarily concerned with methods of analysis, such as ENGL 301, 368a, 379, or 387.

C. Senior Seminar (ENGL 380): 3 hours

***NOTE:** students may include six hours of Senior Thesis (two semesters of ENGL 399), six hours of creative writing (chosen from among ENGL 203, 213, 214, 303, 304, 305 or 406), and/or six hours of 300-level language courses on literary or cultural topics among the 27 hours of literary studies.*

Independent Study

ENGL 390

ENVIRONMENTAL GEOLOGY (GNV)

See Geological Sciences, page 33.

ENVIRONMENTAL STUDIES (EST)

Academic Representative:

Professor Peter McCall

A.W. Smith Building 211C, Ext. 3676

E-mail: plm4@po.cwru.edu

Major (for B.A.)

Hours: 30

A. ESTD 101 and ESTD 398

B. Humanities: RLGN 206 or HSTY 378

C. Social Policy: ECON 368 or GEOL 303

D. Science and Engineering: ESCI 340 or BIOL 350 or GEOL 202

E. 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.

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

For a student who completes a Bachelor of Science degree (B.S., B.S.E., B.S.N.), Environmental Studies may serve as the sole major for a B.A. Degree.

Minor

Hours: 15

A. ESTD 101

B. One course from each of two of the three disciplinary options listed for the major (see B, C, D above)

C. 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 or Social Science Sequence*

Hours: 9

(for B.S. based on the Engineering Core)

A. ESTD 101

B. One course from one of the disciplinary options listed for the major (see B, C, D above)

C. One course 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 Le Hir
204 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.

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.

Multi-Age Licensure, French:

1. Completion of required French courses. For information, contact Professor Marie-Pierre Lehir, the department academic representative.
2. Completion of required Education courses. (see Education – Teacher Licensure Program on page 26).

NOTE: for more information about licensure programs, see Professor Phil Safford, adviser for the CWRU/John Carroll University Joint Program in Teacher Licensure

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

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9-12

A. Students with no high school preparation in French:

FRCH 101, 102, 201

B. Students with the equivalent of one year of college French:

FRCH 201, 202, and one 300-level course

C. Students with the equivalent of two years of college French:

Three 300-level courses

FRENCH STUDIES (FRS)

Academic Representative:
Professor Marie-Pierre Le Hir
204 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.

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9

Three courses from among FRCH 316, 318, 319 or HSTY 330

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, 115; plus GEOL 119, 210, 301, 315, 317, 318, 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 or equivalent

Mathematics: MATH 125, 126 (or 121, 122)

Physics: PHYS 115, 116 or equivalent

Major in Environmental Geology (for B.A.)

Hours: 60 (22 GEOL)

A. Core GEOL courses (22 hours)

GEOL 110, 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 (29 hours)

Chemistry: CHEM 105, 106, 113 or equivalent

Environmental Studies: ESTD 101

Mathematics: MATH 125, 126 (or 121, 122)

Physics: PHYS 115

Biology: BIOL 110

Statistics: STAT 201

GEOLOGICAL SCIENCES (continued)

Major in Geological Sciences (for B.S.)

Hours required for graduation: 133

- A. Core GEOL courses (31 hours)
Any one of GEOL 101, 110, 115; plus GEOL 119, 210, 301, 315, 317, 318, 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 or equivalent
Mathematics: Math 121 (or 123), 122 (or 124)
Physics: PHYS 121 (or 123), 122 (or 124), 221 (or 223)
Computer science: ENGR 131 or other approved programming course

Minor in Geological Sciences

Hours: 15

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

GERMAN (GEM)

Academic Representative:

Professor Margaretmary Daley
211 Guilford House, Ext. 2303
E-mail: mxd43@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 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 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.

GERMAN (continued)

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9-12

- A. Students with no high school preparation in German:**
GRMN 101, 102, 201
- B. Students with the equivalent of one year of college German:**
GRMN 201, 202 and one 300-level course
- C. Students with the equivalent of two years of college German:**
three 300-level courses.

Independent Study: GRMN 398 or 399

GERMAN STUDIES (GES)

Academic Representative:
Professor Margaretmary Daley
211 Guilford House, Ext. 2303
E-mail: mxd43@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

- A. Required Core Courses (15 hrs): ANTH 304, COSI 345, PSCL 369, SOCI 369, 396
- B. At least 15 hours from the following list of approved courses: ANTH 215, 301, 318, ENGL 364, GERO 397, 398, 399, NTRN 201, SOCI 311, 313, 319

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.

For a student who completes a Bachelor of Science degree (B.S., B.S.E., B.S.N.) Gerontological Studies may serve as the sole major for a B.A. degree.

GERONTOLOGICAL STUDIES (continued)

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 courses (see B above).

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

Hours: 9

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

HISTORY (HST)

Academic Representative:

Professor Kenneth F. Ledford

208 Mather House, Ext. 4144

E-mail: kx115@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.

Adolescent to Young Adult Licensure, Integrated Social Studies:

A. Completion of required courses in history and the social sciences. For information, contact Professor Kenneth F. Ledford, the department academic representative.

B. Completion of required Education courses. (see Education – Teacher Licensure Program on page 26).

NOTE: for more information about licensure programs, see Professor Phil Safford, adviser for the CWRU/John Carroll University Joint Program in Teacher Licensure

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 Engineering Core)

Hours: 9

A. HSTY 112 or 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

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

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 Engineering Core)

Hours: 9

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

HUMAN DEVELOPMENT (HDE)

Academic Representative:
Professor Richard Settersten
Mather Memorial, Ext. 2697
E-mail: 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
D. HDEV 391

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

Hours: 9

- A. PSCL 230, HDEV/SOCI 203
B. One course 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 (JAPN)

Academic Representative:
Professor Takao Hagiwara
307 Guilford House, Ext. 6188
E-mail: txh13@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 Engineering Core)

Hours: 9-12

For the beginning student: JAPN 101, 102, 201

The student entering the program with advanced preparation will take more advanced courses to complete a minimum of 9 hours.

JAPANESE STUDIES (JPS)

Academic Representative:
Professor Takao Hagiwara
307 Guilford House, Ext. 6188
E-mail: txh13@po.cwru.edu

Major (for the B.A.)

Hours: 32-34

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

- A. JAPN 201, 202, 301, 302, 350, 351
- B. Senior Colloquium
- C. 3 Asian Studies Courses, CMPL or other related courses as defined below*

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

- A. JAPN 301, 302, 350, 351
- B. 1 Directed Reading Course
- C. Senior Colloquium
- D. 4 Asian Studies Courses, CMPL or other related courses as defined below*

* "Other related courses" could include courses in Japanese Literature, Film, Theater, Art History, Anthropology, Philosophy, Religion, Sociology, Political Science, and History. Courses in other disciplines than Japanese form an important component of the Program. They provide an international, as well as interdisciplinary, perspective on Japanese culture. The individual program of study is supervised and must be approved by a faculty adviser.

A year of study abroad in Japan is highly recommended, as is additional study in another language.

MANAGEMENT INFORMATION & DECISION SYSTEMS (MID)

A minor program in management information and decision systems is offered through the Weatherhead School of Management. See page 73.

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: mx15@po.cwru.edu

NOTE: MATH 101 cannot be counted toward the MATH major or minor.

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. ENGR 131 (3 hours)

B. Approved Electives: (9 hours)

Three electives must be approved by the student's adviser in the Department of Mathematics. If taken in the freshman year, MATH 150 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.

MATHEMATICS (continued)

Major (for B.S.)

Hours required for graduation: 126

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

Major in Applied Mathematics (for B.S.)

Hours required for graduation: 125

The requirements of the B.S. in Applied Mathematics include requirements A through E for the B.S. in Mathematics, plus the following:

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

Adolescent to Young Adult Licensure, Mathematics:

- A. Completion of required Mathematics courses. For information, contact Professor David Singer, the department academic representative.
- B. Completion of required Education courses. (see Education Teacher-Licensure Program on page 26).

NOTE: for more information about licensure programs, see Professor Phil Safford, adviser for the CWRU/John Carroll University Joint Program in Teacher Licensure

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 the 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 courses: MATH 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, 363, 380, or any 400-level** MATH course.

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

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

Independent Study

MATH 301

MUSIC (MUS)

Academic Representative:
Professor Quentin Quereau
201 Haydn, Ext. 2400
E-mail: qxq@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

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 (6-8 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 (6-8 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 (6-8 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 courses

MUSIC (continued)

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 Engineering Core)

Hours: 9

The following options are samples:

- | | |
|-----------------------------------|----------------------------------|
| A. Music and its theory: | MUSC 103, 104; 221 |
| B. Music and its history: | MUSC 103, 221, 222 |
| C. Music and computers: | MUSC 103; 104 or 221; 308 |
| D. Music history and jazz: | MUSC 103 or 104 or 221; 222, 229 |
| E. Music history and world music: | MUSC 103 or 104 or 221; 222, 337 |
| F. Music and performance: | MUSC 103, 221, APMU |

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 Licensure to teach music in Pre-Kindergarten through twelfth grade in Ohio and over 40 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
General Music Methods (MUSC 341 or MUSC 342)	3
Instrumental and Choral Musical Methods (MUSC 377 and MUSC 378)	6
Electives from various instrument classes (1 credit for each class)	5
Practice Teaching (MUSC 396)	<u>12</u>
	83

MUSIC EDUCATION (continued)

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

Major (for B.A.)

Hours: minimum of 50 in science and mathematics

A. 20 hours in one of the following departments: Astronomy, Biology, Chemistry, Geological Sciences, Physics.

B. 8 hours in each of two other departments listed in A above

C. 3 hours in each of the remaining two departments listed in A above

D. 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.; the first major for the B.A. must be in one of the departments within the arts and humanities or the social sciences, excluding the programs in American Studies, Environmental Studies, Gerontological Studies, Pre-Architecture, and Women's Studies. For a student who completes a B.S. degree in management or accounting, Natural Sciences may serve as the sole major for the B.A. degree.

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, 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: 42

A. Required Nutrition Courses (18 hours):

NTRN 201, 342*, 343, 363, 364, 399

B. Additional Required Courses (18-19 hours)

CHEM 105, 106, 223; Biochemistry*; BIOL 110; BIOL 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

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

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

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 342, 328, 351, 363, 364, 365

NUTRITIONAL BIOCHEMISTRY AND METABOLISM (NBM)

Academic Representative:
Professor Hope Barkoukis
201 Dental School, Ext. 2440
E-mail: Hope1215@aol.com

Major (for B.A.)

Hours: 76

- 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 (58 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
 - 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. ENGR 131

PHILOSOPHY (PHI)

Academic Representative:
Professor Colin McLarty
201 Guilford House, Ext. 4476
E-mail: cxm7@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, and chosen to meet specific needs of student. Consult adviser.

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9

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

PHYSICS (PHY)

Academic Representative and Cooperative Education Adviser:
Professor Gary S. Chottiner
104D Rockefeller Building, Ext. 4024
E-mail: gsc2@po.cwru.edu

Major (for B.A.)

Hours: 53 (36 PHYS)

A. Physics courses (36 hours):

PHYS 121 (or 123), 122 (or 124), 221 (or 223), 250

PHYS 309, 313, 331, 351, plus 2 of the following: 310, 315, 316, 324

B. Additional courses required (25 hours):

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

A two course science sequence chosen from: CHEM 105-CHEM 106; CHEM 111-ENGR 145;
BIOL 110-BIOL 210; BIOL 110-BIOL 225 or, with written approval of the department, another two
course science sequence at the 200-level or higher.

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):

ENGR 131 or approved alternate

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

CHEM 105, 106 and 113

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. Details are available from the Math Option Committee.

For B.S.E. program in Engineering Physics see page 63.

Adolescent to Young Adult Licensure, Physical Science:

A. Completion of required courses in the physical sciences. For information, contact Professor William Fickinger (Fall) or Professor Gary S. Chottiner (Spring), the department academic representative.

B. Completion of required Education courses (see Education-Teacher Licensure Program on page 28).

NOTE: for more information about licensure programs, see Professor Phil Safford, adviser for the CWRU/John Carroll University Joint Program in Teacher Licensure

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

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

Hours: 9

POSC 109; 260 or 272; and one 300-level course

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 231, 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.

PSYCHOLOGY (continued)

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

Hours: 9

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

A. Personal and Social Behavior:

PSCL 102, 230, 300, 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

Professor Vincent McHale

113 Mather House, Ext. 2425

E-mail: vem@po.cwru.edu

Minor

Hours: 15

A. The policy process: POSC 386

B. Economic analysis: ECON 205

C. Policy making institutions: one course selected from HSTY 256, 358

POSC 308, 310, 384, 385

D. Two courses on a particular field of public policy selected with the approval of the adviser

RELIGION (RLG)

Academic Representative:

Professor William Deal

105 Mather House, Ext. 2205

E-mail: wed@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 Engineering Core)

Hours: 9

Three 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 Marie-Pierre Le Hir
204 Guilford House, Ext. 2233
E-mail: mx111@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 Engineering Core)

Hours: 9-12

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

B. Students with the equivalent of one year of college Russian.

Emphasis on spoken Russian: RUSN 201, 202, 301.

SOCIOLOGY (SOC)

Academic Representatives:
Professor Gary Deimling
223C Mather Memorial, Ext. 5173
E-mail: gtd@po.cwru.edu

Professor Eleanor Stoller
224 Mather Memorial Bldg., Ext. 2638
E-mail: eps3@po.cwru.edu

Professor Sue Hinze
221 Mather Memorial, Ext. 2702
E-mail: sxh3@po.cwru.edu

Major (for B.A.)

Hours: 30

A. SOCI 112, 300, 303

B. STAT 201 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 Engineering Core)

Hours: 9

SOCI 112 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

or any two additional related courses chosen in consultation with faculty adviser.

Honors Study

SOCI 397/398

Independent Study

SOCI 375

SPANISH (SPA)

Academic Representative:
Professor Jacqueline Nanfito
302 Guilford, Ext. 3071
E-mail: jcn@po.cwru.edu

Major (for B.A.)

Hours: 30-32

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

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

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

Eight 300-level courses taught in Spanish; two 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. Courses other than SPAN must be approved in advance by the major adviser.

Study abroad is highly recommended for all majors, as is additional work in comparative literature and/or in another language. Information on study abroad opportunities may be obtained from the academic representative listed above, from the main office of the Department of Modern Languages and Literatures (201 Guilford House), and from the Office of Undergraduate Studies (Baker Building 102).

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.

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

Hours: 9-12

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

A. Students with no high school preparation in Spanish:

SPAN 101, 102, 201

B. Students with the equivalent of one year of college Spanish:

SPAN 201, 202, and one 300-level course

C. Students with the equivalent of two years of college Spanish:

Three 300-level courses

SPORTS MEDICINE (SPM)

Academic Representative:
Professor Nancy Gray
Veale Center, Ext. 5280
E-mail: nmg@po.cwru.edu

Minor Concentration in Sports Medicine

Hours: 18

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

STATISTICS (STA)

Academic Representative:
Professor Paula Fitzgibbon
Rm. 321 Yost Hall, Ext. 2306
E-mail: paf3@po.cwru.edu

Major (for B.A.)

Hours: 56

- A. MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228), and 201 or equivalent;
- B. ENGR 131 or ECES 251 or approved alternate; plus an additional higher numbered course in computation from CMPS or ECES offerings or EPBI 414 or EPBI 420;
- C. STAT 325 and 326, STAT 345 and 346
- D. 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.
- E. 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

- A. MATH 121 (or 123), 122 (or 124), 223 (or 227), 224 (or 228), and 201 or equivalent;
- B. ENGR 131 or ECES 251 or approved alternate; plus an additional higher numbered course in computation from CMPS or ECES offerings or EPBI 414 or EPBI 420;
- C. STAT 325 and 326, STAT 345 and 346;
- D. 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;
- E. Two approved courses (or more) numbered 300 or above in an approved discipline outside statistics;
- F. 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 the following sequences: 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

- A. STAT 243 and 244, or STAT 345 and 346, or other approved two-course sequence
- B. STAT 208 or STAT 312 or STAT 313 or STAT 332 or STAT 333 or STAT 325
- C. 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 (D) and (E):

- D. 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;
- E. 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 John Orlock
Eldred Theater, Ext. 5923
E-mail: jmo3@po.cwru.edu

Drama:

Professor Russ Borski
Eldred Theater, Ext. 5927
E-mail: rxb33

Professor Catherine L. Albers (Spring)
Eldred Theater, Ext. 5926
E-mail: cla2@po.cwru.edu

Concentrations for the major (for B.A.)

A. Acting

Hours 55

1. Students interested in the acting concentration must audition in the spring semester of their freshman year.
2. THTR 101, 102, 103, 104, 123, 124 and one of the following: 227, 312, 327, or 329 and two of the following: 223, 224, or 352
3. At least four, but no more than eight hours of THTR 385. Must be taken in the first four semesters as a declared major.
4. THTR 231, 232, 306, 331, 375, 376, 411
THTR 397 and 398 (honors study) highly encouraged in senior year
5. Six hours of 300-level or above English courses selected in consultation with an adviser; ENGL 324 and 325 (Shakespeare) are recommended.

THEATER ARTS (continued)

B. Dance

Hours: 53

1. THTR 101, 102, 103, 104, 123, 124, 223, 224, 352, and one of the following: 227, 312, 327, or 329
2. At least four, but no more than eight hours of THTR 385. Must be taken in the first four semesters as a declared major.
3. THTR 189, 190, 203, 204, 303, 304, 413
THTR 397 and 398 (honors study) highly encouraged in senior year
4. Six hours of 300-level or above English courses selected in consultation with an adviser; ENGL 324 and 325 (Shakespeare) are recommended.

C. Design/Technical Theater

Hours: 51

1. THTR 101, 102, 103, 104, 123, 124, 223, 224, 352, and one of the following: 227, 312, 327, or 329
2. At least four, but no more than eight hours of THTR 385. Must be taken in the first four semesters as a declared major.
3. THTR 105, 217; 227 or 329; 331, 440, 480
THTR 397 and 398 (honors study) highly encouraged in senior year
4. Six hours of 300-level or above English courses selected in consultation with an adviser; ENGL 324 and 325 (Shakespeare) are recommended.

D. General Theater

Hours: 51

1. THTR 101, 102, 103, 104, 123, 124, 223, 224, 352, and one of the following: 227, 312, 327, or 329
2. At least four, but no more than eight hours of THTR 385. Must be taken in the first four semesters as a declared major.
3. THTR 231 or 232; 227 or 329; 217 or 338; 331, 375
4. Six hours of 300-level or above English courses selected in consultation with an adviser; ENGL 324 and 325 (Shakespeare) are recommended.

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.

Concentrations for the minor

Hours: 18

- A. General Theater: THTR 101, 103, 123, 124, and one of the following: 223, 224, or 352 and one of the following: 227, 312, 327, or 329
- B. Design/Technical: THTR 123, 124, 223, 224, 352 and one of the following: 227, 312, 327, or 329
- C. Dance: THTR 103, 104, 203, 204, 303, 304
- D. Acting: THTR 101, 102, 123, 124, 231, 375

Humanities Sequence (for B.S. based on Engineering Core)

Hours: 9

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

Sample programs follow:

- A. Acting: THTR 123 or 124; THTR 101 and 102
- B. Dance: THTR 123 or 124; THTR 103 and 104
- C. Stagecraft: THTR 105; THTR 123 or 124; and THTR 223 or 224
- D. Costume Construction and History : THTR 123 or 124; THTR 352 and one of the following: 227, 312, 327, or 329

WOMEN'S STUDIES (WMN)

Academic Representative:
Professor Jonathan Sadowsky
Mather House, Ext. 2622
E-mail: jas34@po.cwru.edu

Major

Hours: 30

A. Required Courses (6 hours)

1. WSTD 201
2. ANTH 365 or ENGL 371 or HSTY 400

B. Elective courses (24 hours)

Students must take at least two courses from two of the three areas listed below, and at least one course in the third area. The remaining courses may be selected from any of the three areas:

1. The Arts: ARTH 383, THTR 338
2. Humanities: ENGL 353, 368C, 370; FRCH 376; GRMN 315; HSTY 240, 313, 320, 350, 353, 354; JAPN 341; LAWS 356; PHIL 325, 334; RLGN 207, SPAN 342
3. Social Sciences: ANTH 306, 309, 345, 354, 356, 505, 508, 542; ECON 333; NURS 454; POSC 346; PSCL 390; SOCI 222, 326, 372

NOTE: Women's 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 the Women's Studies major.

For a student who completes a Bachelor of Science degree (B.S., B.S.E., or B.S.N.), Women's Studies may serve as the sole major for a B.A. degree,

Minor

Hours: 18

WSTD 201 plus five additional courses, selected in consultation with the adviser.

Humanities or Social Science Sequence* (for B.S. based on Engineering Core) Hours: 9

Nine hours of work selected in consultation with the program adviser from courses approved for inclusion in the Women's Studies Program.

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

THE CASE SCHOOL OF ENGINEERING

James W. Wagner, Dean
312 Glennan Building, Ext. 4436
E-mail: jww2@po.cwru.edu

Degrees and Degree Requirements

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

The Bachelor of Science degree based on the Engineering Core is awarded in the following areas: aerospace engineering, biomedical engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, engineering physics, fluid and thermal engineering science, materials science and engineering, mechanical 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 128-133 hours as specified by the requirements for each B.S.E. program.
2. The Engineering Core Curriculum
3. 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 Engineering Core Curriculum, with modifications. 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:

- A. A minimum of 127 hours.
- B. The Engineering Core Curriculum*
*Candidates for the B.S. in Computer Science are exempt from ENGR 200, ENGR 210, and ENGR 225
- C. The requirements for the computer science major as presented in this handbook.

The Engineering Core Curriculum

The Engineering 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 Engineering Core Curriculum is also designed to develop communication skills and to provide a body of work in the humanities and social sciences.

1. **Mathematics** (14 semester hours)
MATH 121 or 123-Calculus for Science and Engineering I
MATH 122 or 124-Calculus for Science and Engineering II
MATH 223 or 227-Calculus for Science and Engineering III
MATH 224 or 228-Elementary Differential Equations or an approved course in Introduction to Dynamic Systems
2. **Chemistry** (4 semester hours)
CHEM 111-Principles of Chemistry for Engineers
3. **Physics** (8 semester hours)
PHYS 121, 122 (regular)-General Physics I, II
or
PHYS 123, 124 (honors)-Physics and Frontiers I, II
4. **Engineering** (18 semester hours)
ENGR 131-Elementary Computer Programming
ENGR 145-Chemistry of Materials
ENGR 200-Statics and Strength of Materials
ENGR 210-Introduction to Circuits and Instrumentation
ENGR 225-Thermal Dynamics, Fluid Dynamics, Heat and Mass Transfer
5. **Natural Science, Mathematics, or Statistics Requirement** (3 semester hours)
as designated by the major department
6. **English Composition** (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 higher 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.

7. **Humanities & Social Sciences** (21 semester hours)

The Humanities & Social Science requirement must include the following:

- a. Approved Professional Communications Course (3 semester hours)
- b. An approved sequence of 9 semester hours (three courses) in a single department or program in the Humanities or Social Sciences.
- c. A minimum of 6 semester hours (two courses) in the social sciences, and a minimum of 6 semester hours (two courses) in the humanities, not including the Professional Communications course.

For students who choose to complete a minor, up to 12 hours of these 21 hours may be used towards fulfillment of the minor requirements.

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

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

Note: 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 four, rather than three, courses. The sequence in Pre-Architecture requires five courses.

Two semesters of beginning work in a foreign language may be counted toward satisfaction of the requirement for a three course sequence only when the sequence consists of three courses taken in a single foreign language. Credit for the first semester of beginning study (101 level) in a foreign language will not serve toward satisfaction of any degree requirement unless credit is earned for the second semester (level 102) as well.

**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.

Undergraduate Programs of The Case School of Engineering

All major programs described in this section require completion of The Engineering Core (see pages 56-57). For all engineering programs, please see the CWRU General Bulletin and the individual departments for full details concerning technical electives, 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: 128

- A. Engineering Core, with PHYS 221 satisfying the "natural sciences, mathematics or statistics" requirement
- B. Major Courses:
EMAE 172, 181, 250, 282, 283, 325, 350, 355, 356, 359, 360, 376, 381, 382, 398
- C. Related Required Courses: ECIV 310; ESCI 212, 214
- D. Technical Elective (3 hours)

Cooperative Education:

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

BIOMEDICAL ENGINEERING (EBI)

Academic Representative:
Professor Patrick E. Crago
305 Wickenden, Ext. 3977
E-mail: pec3@po.cwru.edu

Cooperative Education Adviser:
Professor J. Thomas Mortimer
3480 C.B. Bolton Building, Ext. 3973
E-mail: jtm3@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 132

- A. Engineering Core, with an approved science or mathematics course satisfying the "natural sciences, mathematics, or statistics" requirement.
- B. Major Courses
EBME 201, 202, 306, 308, 309, 310, 313, 314, 359, 360, 380 or 398
- C. EBME Specialty Sequence: 5-7 courses in a biomedical engineering specialty selected from Biomaterials (polymeric), Biomaterials (orthopedic), Biomechanics (tissues), Biomechanics (Prosthetics), Biomedical Computer and Imaging, Clinical Engineering, Biomedical Instrumentation (devices), Biomedical Instrumentation (sensors), Biomedical Systems and Control
- D. Sequence-specific statistics course (STAT 312, 313, 332 or 333)

BIOMEDICAL ENGINEERING (continued)

Minor (based on Engineering 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

Note: EBME 105 is recommended and available only to freshmen.

CHEMICAL ENGINEERING (ECE)

Academic Representative and Cooperative Education Adviser:

Professor Philip Morrison

133 Smith Bldg., Ext. 4238

E-mail: pwm5@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 131-133

- A. Engineering Core, with one course chosen from BIOL 205, CHEM 224 (or 324) or PHYS 221 to satisfy the "natural sciences, mathematics or statistics" requirement.
- B. Major Courses
ECHE 151, 260, 360, 361, 362, 363, 364, 365, 367, 398, 399
- C. Related Required Courses:
CHEM 223, 290, 302, STAT 313
- D. Approved Technical Electives: 9-11 hours
- E. Science Elective (any one of the following not chosen as the Engineering Core requirement): BIOL 205, CHEM 224 (or 324), PHYS 221
- F. Materials Elective (any one of the following):
EMAC 270, EMAC 272, EMSE 314, EMSE 316 or other approved course

Minor (based on the Engineering Core)

Hours: 15

ENGR 225

ECHE 260, 360 plus two of the following: ECHE 361, 363, 364, 365, 367

Cooperative Education (Optimal times):

Third Year - Summer/Fall

Fourth Year - Spring/Summer

CIVIL ENGINEERING (ECI)

Academic Representative and Cooperative Education Adviser:

Professor Robert Mullen

206 Bingham Building - Ext 2423

E-mail: rlm@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 129

- A. Engineering Core, with PHYS 221 (or approved alternative) satisfying the "natural sciences, mathematics, or statistics" requirement.
- B. Major Courses:
ECIV 160, 211, 310, 320, 322, 330, 340, 351, 360, 368, 398
- C. Related Required Courses:
ECES 251, EMAE 181
- D. Approved Technical Electives: 12-15 hours*

* 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 Engineering Core)

A minimum of 15 credit hours from one of the following areas approved by the department: Environmental Engineering, Engineering Mechanics, Structural or 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 Lee White
402 Olin Bldg., Ext. 3919
E-mail: ljw@po.cwru.edu

Major in Computer Engineering: (*for B.S.E. in Engineering*)

Hours required for graduation: 129

- A. Engineering Core, with an approved statistics course satisfying the "natural sciences, mathematics, or statistics" requirement.
- B. Major Courses:
ECES 233,251,281,301; 318 or 338; 321,322,337,399
- C. Related Required Courses: MATH 304
- D. Approved technical electives (12 hours)

Minor in Computer Engineering: (*based on the Engineering Core*)

Hours: 15

- A. ECES 281, 233 plus one of the following tracks:
 - 1. Hardware sequence: ECES 321, 322
 - 2. Software sequence: ECES 337, 338
- B. In addition to these two tracks, the student may design his/her own track with the approval of the minor adviser.

Major in Computer Science: (*for B.S.*)

Hours required for graduation: 127

- A. Engineering Core* with either MATH 380 or STAT 312 satisfying the "natural sciences, mathematics or statistics" requirement.
- B. ECES 233, 251, 281, 322, 337, 338, 340, 341, 343, 345, 391, 398
- C. MATH 304
- D. Approved technical electives (12 hours)

* Candidates for the B.S. in Computer Science are exempt from the following Engineering Core courses:
ENGR 200, ENGR 210, and ENGR 225.

Minor in Computer Science: (*based on the Engineering Core*)

Hours: 15

- A. ECES 233, 338, 340
- B. A student must take an additional four credit hours of ECES courses.

Cooperative Education:

Optimal Times:

Third Year-Spring/Summer

Fourth Year-Summer/Fifth Year-Fall

For B.A. program in Computer Science, see page 27.

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
511 Glennan Bldg., Ext. 6436
E-mail: slg9@po.cwru.edu

Cooperative Education Adviser:
Professor Francis L. Merat
515A Glennan Bldg., Ext. 4572
E-mail: flm@po.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: 128

- A. Engineering Core, with STAT 332 (plus EEAP 352 or other class approved by the department) satisfying the "natural sciences, mathematics, or statistics" requirement
- B. Major Courses:
EEAP 245, 246, 309, 321, 398, 399
- C. ECES 281
- D. Approved Technical Electives (18 hours), including approved department hours (9 hours)
- E. Open Electives (9 hours)

Minor (based on Engineering Core)

EEAP 245, 246, 309, ECES 281
One approved technical elective

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

ENGR 131
ENGR 210
ECES 281
EEAP 246
MATH 125, 126 (or MATH 121, 122), MATH 224
PHYS 115, 116 or PHYS 121, 122, 221

Cooperative Education

Recommended Times:
Summer/Fall **AFTER** second year
Spring/Summer of fourth year

ENGINEERING (Undesignated) (EGR)

Hours required for graduation: 128

Academic Representative:
Professor Donald L. Feke, Associate Dean
312 Glennan Bldg., Ext. 8760
E-mail: dlf4@po.cwru.edu

Major: (for B.S. in Engineering)

- A. Engineering Core, with PHYS 221 or approved alternative satisfying the "natural sciences, mathematics, or statistics" requirement.
- B. An engineering major concentration (minimum of 21 hours) approved by the major department
- C. An engineering minor (minimum of 15 hours) approved by the minor department
- D. ECES 251
- E. Technical electives

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

ENGINEERING PHYSICS (EPH)

Academic Representative and Cooperative Education Adviser:
Professor Kenneth D. Singer
225D Rockefeller Bldg., Ext. 4017
E-mail: kds4@po.cwru.edu

Major (for B.S. in Engineering)

Hours required for graduation: 127

- A. Engineering Core, with PHYS 221 (or 223) satisfying the "natural sciences, mathematics, or statistics" requirement
- B. Major courses: PHYS 208, 250, 310, 313, 315, 317, 318, 324, 325, 331, 353
- C. Related required courses:
CHEM 113
One course from EEAP 321, EEAP 420, EMSE 314, EMSE 405 or PHYS 332
- D. Engineering Physics concentration (12 hours)
An approved sequence of 4 courses in an engineering discipline

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: 128

- A. Engineering Core, with PHYS 221 (or approved alternative) satisfying the "natural sciences, mathematics, or statistics" requirement
- B. Major Courses:
EMAE 152, 172, 181, 250, 282, 283, 325, 350, 355, 356, 359, 360, 398
- C. Related Engineering Courses:
ESCI 212, 214
- D. Technical Electives (9 hours)

Cooperative Education

Optimal Times:

Third Year - Spring/Summer

Fifth Year - Summer/Fall

MATERIALS SCIENCE and ENGINEERING (EMS)

Academic Representative (Major/Minor):

Professor Mark DeGuire

412 White Bldg., Ext. 6481

E-mail: mrd2@po.cwru.edu

Cooperative Education Adviser:

Professor James Cawley

500B White Bldg., Ext. 6482

E-mail: jxc41@po.cwru.edu

Major: (for B.S. in Engineering)

Hours required for graduation: 128

- A. Engineering Core, with CHEM 301 satisfying the "natural sciences, mathematics, or statistics" requirement.
- B. Major Courses: EMSE 102, 201, 202, 203, 270, 280, 290, 301, 302, 303, 310, 312, 313, 314, 398, 399
- C. ECES 251 or PHYS 250 or EMAE 250
- D. Technical electives (9 hours)
- E. Open electives (9 hours)

Minor (based on Engineering Core)

Hours: 15

EMSE 201 plus four of the following courses selected in consultation with the department minor adviser:

EMSE 202, 203, 301, 303, 307, 312, 313, 314, 316

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: 128

- A. Engineering Core, with PHYS 221 (or approved alternative) satisfying the "natural sciences, mathematics, or statistics" requirement
- B. Major Courses:
EMAE 172, 181, 250, 271, 282, 283, 325, 350, 355, 360, 370, 398
- C. Related Required Courses:
ECIV 310; ESCI 212, 214; OPRE 345
- D. Technical Electives (9 hours)

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: 129

- A. Engineering Core, with an approved natural sciences course satisfying the "natural sciences, mathematics, or statistics" requirement.
- B. Major Courses:
EMAC 351, 352, 270, 272, 276, 372, 376, 377, 378, 398
- C. Related Required Courses:
CHEM 223, 224; and CHEM 290 or 321
- D. Technical Electives (12 hours)

Minor: (based on the Engineering Core)

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 N. Sreenath
608 Olin Bldg., Ext. 6219
E-mail: nxs6@po.cwru.edu

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

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

Hours required for graduation: 128

- A. Engineering Core, with one course chosen from PHYS 221, STAT 345, MATH 307, MATH 321 or MATH 345 to satisfy the "natural sciences, mathematics, or statistics" requirement.
- 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
- D. 4 Technical Electives (12 hours) from an approved list
- E. One technical elective (3 hours) with laboratory, from an approved list

Minor: (based on Engineering 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, 214, 304, 346, 352.

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

Examples:

- A. Systems: ESCI 110, ESCI 352
- B. Control: ESCI 313, 306

Cooperative Education

Optimal Times:

Third Year - Spring/Summer

Fourth Year - Summer

Fifth Year - Fall

THE FRANCES PAYNE BOLTON SCHOOL OF NURSING

Dorothy Brooten, Dean
2121 Abington Road, Ext. 2545
E-mail: dab9@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. 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, 150

*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.

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 11) except that the two courses taken under a single heading need not form a sequence.
4. ***Social Sciences*** (6 semester hours total)
 - a. PSCL 101 or ANTH 102 or SOCI 112
 - b. SOCI 203 or approved course in human growth and development
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 13)

NURSING (NUR)

Academic Representative:
Professor John Clochesy
School of Nursing, Ext. 5129
E-mail: jmc@po.cwru.edu

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, 346, 351, 353,
352 or 354 or 356
- B. School of Nursing General Education Requirements (41 hours)

WEATHERHEAD SCHOOL OF MANAGEMENT

Kim S. Cameron, Dean
500 Enterprise Hall, Ext. 2046
E-mail: ksc6@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 2.00. 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.
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 12)
 - c. ***Science and Society:*** (0-3 semester hours) See Arts and Sciences General Education Requirements (page 12)

Weatherhead School of Management General Education Requirements (continued)

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 12), 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 13).

Undergraduate Programs of The Weatherhead School of Management

ACCOUNTING (ACC)

Academic Representative and Professional Practicum Adviser:

Professor Timothy Fogarty

663 Enterprise Hall, Ext. 3938

E-mail: tjf@po.cwru.edu

Students may not use the P/NP option for any Weatherhead School of Management Courses (ACCT, BAFI, BLAW, LHRP, MIDS, MKMR, OPMT, ORBH, OPRE, PLCY)

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 65)	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.

Minor

ACCT 101, 102, 300, and two additional 300-level accounting courses.

Cooperative Education:

Optimal Times:

Third Year - Spring Semester

Internship Program

Optimal Times:

Junior Year

ECONOMICS (ECO)

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

See page 28 for descriptions of major, minor, and sequence programs in economics

MANAGEMENT (MGT)

Academic Representative
and Professional Practicum Adviser:
Dr. Gary Previts
625 Enterprise Hall, Ext. 2074
E-mail: gjp@po.cwru.edu

Academic Representative:
Mr. John P. Fischer, M.B.A., C.P.A.
Enterprise 341, Ext. 2032
E-mail: jxf13@po.cwru.edu

Students may not use the P/NP option for any WSOM course (ACCT, BAFI, BLAW, LHRP, MIDS, MKMR, OPMT, ORBH, OPRE, PLCY)

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:

<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	OPMT 353
	ECON 326	ECON 374		
	ECON 332	ECON 375		

NOTE: Special sequences may be arranged in Marketing or in Human Resources. Consult the Weatherhead Office of Undergraduate Services for appropriate forms and information about the approval process.

** *Choose three of the courses listed.*

*** *Optional if student has programming experience or completed ENGR 131*

MANAGEMENT (continued)

- B. Requirements in other fields (47 hours):
 WSOM General Education Requirements (see page 66) 47
- C. Non-WSOM Electives (must be from *outside* WSOM, or from economics) 15
- D. Open Electives 12

Professional Practicum

Optimal Times:

Third Year - Spring

Fourth Year - Fall

MANAGEMENT INFORMATION & DECISION SYSTEMS (MID)

Academic Representative:

Professor Kai Lim

670 Enterprise Hall, Ext. 4640

E-mail: kh12@po.cwru.edu

Minor

Hours: 15-18

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

ACADEMIC ADVISING

Academic advising is an important component of the educational program at Case Western Reserve University. Academic advisers assist students in the exploration of academic opportunities at the University and in the selection of courses. Advisers may refer students to other sources of information and assistance at the University. Students are expected to initiate and maintain regular contact with their advisers to address the student's curricular and career concerns, and to review progress towards graduation. Students are responsible for obtaining required signatures on all forms relating to registration, major and minor declaration, and graduation.

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. A choice or change of major or minor is not recorded for any student until the major or minor declaration form, bearing the signature of the student, the name of the adviser, and the signature of the department representative, 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 AND SPECIAL PROGRAM ADVISERS

Students planning to study at the graduate or professional school level or who are interested in special undergraduate programs at the University are urged to consult the appropriate adviser.

Accountancy (MACC)

Professor Larry Parker
650 Enterprise Hall, Ext. 2065
E-mail: lp3@po.cwru.edu

Management (MBA)

Mr. John Fischer, M.B.A.
341 Sears Hall, Ext. 3856
E-mail: jxf13@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

Dr. Emery Lee
Office of Undergraduate Studies
102 Baker Bldg., Ext. 2928
E-mail: egl4@po.cwru.edu

Nursing

Dr. Beverly Roberts
School of Nursing, Ext. 2541
E-mail: blr4@po.cwru.edu

ADVISERS FOR SPECIAL PROGRAMS

For further information concerning special programs consult:

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

Professor Donald L. Feke
Associate Dean for Academic Affairs
Case School of Engineering
312 Glennan Bldg., Ext. 8760
E-mail: dlf4@po.cwru.edu

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

Professor Dario Gasparini
Faculty Adviser of Binary Programs
Case School of Engineering
Bingham 209, Ext. 2699
dag6@po.cwru.edu

COOP Program

Ms. Deborah Fatica
Office of Career Planning and Placement
06 Sears Bldg., Ext. 4446
E-mail: dx3@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
Dean Margaret Robinson
Office of Undergraduate Studies
102 Baker Bldg., Ext. 2928
E-mail: mxr5@po.cwru.edu

Internships and Practica

Ms. Heidi McCormick
Office of Career Planning and Placement
206 Sears Bldg., Ext. 4446
E-mail: hxm29@po.cwru.edu

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 Licensure

Professor Phil Safford
Mather House, Ext. 4155
E-mail: psafford@aol.com

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

Professor Frances Lee
Department of Political Science
111 Mather House, Ext. 5265
E-mail: fel@po.cwru.edu

CAREER COUNSELING

For students needing assistance in making or planning career choices, the Office of Career Planning and Placement (206 Sears Bldg., Ext. 4446) offers a variety of 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 students to begin study towards the M.S. degree prior to completion of the B.S. degree, and allows 9 hours of credit to be counted towards both the B.S. and the M.S. degrees. Students in the program generally combine the senior project with the Master's thesis (plan A) or Master's project (plan B). Students must apply for 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 Professor Don Feke, Associate Dean of Engineering, 312 Glennan. Students wishing to pursue the M.S. in mathematics, a science, or statistics may obtain information from Dean Margaret Robinson 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.

To be eligible for the senior year *in absentia* privilege, a student must:

1. Attain a cumulative grade point average of at least 3.20 in all courses attempted from the date of admission as an undergraduate.
2. Meet the following degree requirements:
 - a. Completion of the Arts and Sciences General Education Requirements and two semesters of physical education, unless excused from the latter.
 - b. Completion of three-fourths of the courses required for the major, including three-fourths of the courses required in the major department.
 - c. Completion of 84 hours of arts and sciences courses. These credits may be drawn from those offered by the College of Arts and Sciences as well as those in economics, biochemistry, nutrition or computer science.

In addition to meeting all requirements listed above, students qualifying for the senior year *in absentia* privilege must have completed at least 90 semester hours of academic credit, of which the final 60 hours must have been in residence. A student may include in that final 60 hours no more than six semester hours earned in courses completed in other institutions, either by cross registration in regular sessions or by approved transient registration in summer sessions.

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. To be eligible for the senior year in professional studies privilege, a student must:

1. Be accepted for admission to professional studies in Case Western Reserve University.
2. Meet the following degree requirements:
 - a. Completion of the Arts and Sciences General Education Requirements and two semesters of physical education, unless excused from the latter.
 - b. Completion of three-fourths of the requirements for the major, including three-fourths of the courses required in the major department.
 - c. Completion of 84 hours of arts and sciences courses. These credits may be drawn from those offered by the College of Arts and Sciences as well as those in economics, biochemistry, nutrition or computer science.

In addition to meeting all requirements listed above, students qualifying for the senior year in professional studies privilege must have completed at least 90 semester hours of academic credit, of which the final 60 hours must have been in residence. A student may include in that final 60 hours no more than six semester hours earned in courses completed in other institutions, either by cross registration in regular sessions or by approved transient registration in summer sessions.

SPECIAL UNDERGRADUATE PROGRAMS

CO-OP PROGRAM

Cooperative education offers the opportunity to students to find during their 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, 206 Sears Library Building,
Ext. 4446. E-mail: 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 Margaret Robinson

(E-mail: mxr5@po.cwru.edu) or Timothy Dodd (E-mail: tmd6@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, Kelvin Smith Library 105, Ext. 5230 (TDD: 368-3059).

E-mail: sms17@po.cwru.edu

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. Students completing both a B.A. and a B.S. degree are exempted from 6 hours of the 90 hour arts and sciences requirement for the B.A. 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 (Kelvin Smith Library, Room 105, 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 AND PRACTICA

The Internship and the Professional Practicum Programs offer the opportunity for students to find during the undergraduate careers part-time or full-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, 206 Sears Library Building, Ext. 4446. E-mail: hxm29@po.cwru.edu

JUNIOR YEAR ABROAD

Full-time students who have earned a 3.00 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) or Ms. Claudia Anderson-Nhok (cca2@po.cwru.edu) in the Office of Undergraduate Studies, Baker 102, Ext. 2928.

INTERNATIONAL EXCHANGE PROGRAMS

Qualified students may participate in international exchange programs which send CWRU students overseas and bring to CWRU visiting international students. Up to 32 semester hours of credit may be granted for study as an exchange student at an established foreign university with which CWRU has an exchange program. CWRU students participating in exchange programs pay tuition to CWRU and maintain CWRU student status during the period of the exchange.

THE GLOBAL ENGINEERING EXCHANGE PROGRAM (GE3)

Case Western Reserve University participates in the Global Engineering Education Exchange (GE3), an international exchange program administered by the Institute for International Education. The GE3 program provides opportunities for engineering students at member institutions to receive academic credit for courses taken at overseas member institutions, and to have an internship experience in a foreign setting. Information about the GE3 program is available from the study abroad adviser in the Office of Undergraduate Studies.

BILATERAL EXCHANGE PROGRAMS

Case Western Reserve University has a bilateral exchange program with the University of Lancaster, UK. Information about bilateral exchange programs with other overseas universities is available from the study abroad adviser in the Office of Undergraduate Studies.

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, Hispanic, and Pacific Islander) 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, Kelvin Smith Library, Room 105, Ext. 6960, E-mail: gxo2@po.cwru.edu.

TEACHER LICENSURE

The undergraduate programs in art education and music education meet the requirements for teacher licensure , grades pre-K-12.

Ohio teacher licensure may be attained by those undergraduate students who complete the approved curriculum of the Case Western Reserve University/John Carroll University Joint Program in Teacher Licensure. Adolescence/Young Adult Teacher Licensure is available in Integrated Language Arts (English major), Integrated Social Studies (history major), Integrated Mathematics (mathematics major), Life Sciences (biology major), and Physical Sciences (chemistry *or* physics major). Multi-age licensure is available in French. The program requires 36 credit hours in professional education: 12 taken at Case Western Reserve University and 24 taken at John Carroll University. For program details, see the section on Education-Teacher Licensure Program (page 28) in this handbook.

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 Dean Timothy Dodd (E-mail: tmd6@po.cwru.edu), 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 Dr. Frances Lee, 219 Mather House, Ext. 5265.

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 3.20 or better. To register for 22 or 23 hours a minimum average of 3.50 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 2.00 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 Yost 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 2.00

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 1.00
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

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

At the end of each academic year, the records of all students holding full-tuition scholarships, Trustees' 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 3.75 or higher will be placed on the Dean's High Honors List. Students with a grade point average of at least 3.50 but less than 3.75 will be placed on the Dean's Honors List.

COMMENCEMENT HONORS

(to take effect with the class graduating in 2002)

Commencement Honors are awarded to the top 35 per cent of the graduating class.

Top 10 per cent	<i>summa cum laude</i>
Next 10 per cent	<i>magna cum laude</i>
Next 15 per cent	<i>cum laude</i>

To be eligible for commencement honors, candidates must have:

1. Earned a minimum of 54 hours for evaluative grades (A,B,C,D) in residence at the University.
2. Attained the required percentile ranking on the basis of 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

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 most 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 1999-2000

FALL SEMESTER, 1999

August 23	Classes begin Drop/Add Late Registration begins
August 24	Late Fee (\$25) begins
September 3	Drop/Add ends Late Registration ends Deadline Credit/Audit (UNDG) Deadline for cross registration approval
September 6	Labor Day Holiday
October 18	Mid-Term Grades due (UNDG)
October 18-19	Fall Break
November 5	“T” Grades due Last day to withdraw from a course with a grade of W
November 15	Open registration for Spring begins Drop/Add begins
November 25-26	Thanksgiving Holidays
December 1, 2, 3	Pass/NoPass—Submit form in Baker 102
December 3	Last Day of Classes
December 6-7	Reading Days
December 8	Final Exams begin
December 15	Final Exams end
December 17	Final Grades Due by 11:00 a.m.
January 14, 2000	Awarding of January Degrees

SPRING SEMESTER, 2000

January 17	Martin Luther King Jr. Holiday
January 18	Classes begin Drop/Add begins Late Registration begins
January 19	Late Fee (\$25) begins
January 28	Drop/Add ends Late Registration ends Deadline Credit/Audit (UNDG) Deadline for cross registration approval
March 13	Mid-Term Grades due (UNDG)
March 13-17	Spring Break
March 31	“I” Grades due (UNDG) Last day to withdraw from a course with a grade of W
April 17	Open registration for Fall begins
April 24	Open registration for Summer begins
Apr 29, 30, May 1	Pass/NoPass—Submit form in Baker 102
May 1	Last Day of Classes
May 2-3	Reading Days
May 4	Final Exams begin
May 11	Final Exams end
May 13	Final Grades due by 11:00 a.m.
May 21	University Commencement

SUMMER SEMESTER, 2000

June 5	Classes Begin
July 4	Independence Day Holiday
July 31	Classes End
August 2	Final Grades Due 12:00 noon
August 18	Awarding of August Degrees