

# the Bulletin

AUGUST 2009 - UNDERGRADUATE ISSUE

→ Explore a Different Issue

## School of Business Administration

### (INB) International Business (Collapse Description)

The international business major is an interdisciplinary major designed to meet the needs of students interested in different facets of the international area. It may be taken as a stand-alone major, in conjunction with a major or minor in a functional business discipline, or with a major or minor in a language. The business curriculum for the major consists of all core business courses (FIN 301, MGT 301, MKT 301, OPS 301, MIS 301, and MGT 490) and their prerequisites, five required international business courses: ECO 460 or ECO 461, FIN 450, MGT 403, MKT 440, and INB 450, plus two international electives. These electives may come from the courses listed above, which are not selected as a required course, or from the following international business electives: ACC 412, BAI 301, or MKT 445; 300 or 400 level language courses that are not part of a language major or minor; or from an international course outside the School of Business Administration that is approved by the Director of International Business Programs. One of the two electives is waived if the student has a minor or second major and double counts one of the courses. Both electives are waived if the student has a second major and does not double count one of the courses. In addition, competency in a foreign language, which may be demonstrated by successful completion of two semesters of 200 language study or passing of the competency test given by the language department, and an international experience are required. (This may include: participation in a study abroad program; attendance at an educational institution outside the United States; or an international business internship or co-op.)

A minor in international business consists of twelve semester hours, nine from: ECO 460, ECO 461, MGT 403, MKT 440, or FIN 450 in addition to INB 450.

Two certificates in international business are also available for non-business students wishing to demonstrate an interest in international business. One has a marketing or human resource emphasis. The requirements for this are: four core business courses: ACC 207 or 301, ECO 203, MGT 301, and MKT 301; three International Business courses, including, two courses from ECO 460, MGT 403, MGT 414, MKT 340, and MKT 440; plus INB 450. The second certificate has an economics or finance emphasis. The requirements are: four or five core business courses: ACC 207 and 208 or ACC 301, ECO 203, 204, and FIN 301; three International Business courses, including, two courses from ACC 412, ECO 460, ECO 461, and FIN 450; plus INB 450.

Other requirements for both certificates include: competency in a foreign language which may be demonstrated by successful completion of two years of college language study or passing of the competency test given by the language department, and an international experience. This may include: participation in a study abroad program; attendance at an educational institution outside the United States; or an international business internship or co-op.

William Sekely, Director

### Majors/Minors (Collapse All)

Major/Minor Name

Bachelor of Science with a major in International Business (INB)

		Sem. Hrs.
First-Year		31
BAI 103L <sup>1</sup>	BUSINESS COMPUTING LABORATORY	1
BAI 150	BUSINESS EDUCATIONAL PLANNING	1
BAI 151	BUSINESS INTEGRATION EXPERIENCE	1
CMM 110 <sup>2</sup>	GROUP DECISION MAKING	1
ENG 101 <sup>3</sup>	COLLEGE COMPOSITION I	3
ENG 102 <sup>3</sup>	COLLEGE COMPOSITION II	3

Search Academic Information General Information

#### Explore by Department / Program:

Geology  
Health and Sport Science  
History  
International Business

Explore

#### Explore by Major / Minor:

History (HST)  
Human Rights Studies (HRS)  
Industrial Engineering Technology (IET)  
International Business (INB)

Explore

#### Explore by Courses:

Industrial Engineering Technology (IET)  
Integrated Natural Science Sequence (SCI)  
Interdisciplinary Studies (ASI)  
International Business (INB)

Explore

HST 103	THE WEST AND THE WORLD	3
MTH 128 <sup>4</sup>	FINITE MATHEMATICS	3
MTH 129	CALCULUS FOR BUSINESS	3
PHL 103	INTRODUCTION TO PHILOSOPHY	3
REL 103	INTRODUCTION TO RELIGION	3
Physical and Life Science elective <sup>5</sup>		3
Social Science elective <sup>6</sup>		3
Sophomore-Year		32
ACC 207	INTRODUCTION TO FINANCIAL ACCOUNTING	3
ACC 208	INTRODUCTION TO MANAGERIAL ACCOUNTING	3
CMM 111 <sup>2</sup>	INFORMATIVE PUBLIC SPEAKING	1
CMM 113 <sup>2</sup>	INTERVIEWING	1
DSC 210	STATISTICS FOR BUSINESS I	3
DSC 211	STATISTICS FOR BUSINESS II	3
ECO 203	PRINCIPLES OF MICROECONOMICS	3
ECO 204	PRINCIPLES OF MACROECONOMICS	3
MGT 201	LEGAL ENVIRONMENT OF BUSINESS	3
Arts Study elective <sup>8</sup>		3
Physical and Life Science elective <sup>5</sup>		3
HST elective <sup>8</sup>		3
Junior-Year		30
ECO 460 or 461	ECONOMIC DEVELOPMENT AND GROWTH (ECO 460) INTERNATIONAL ECONOMICS (ECO 461)	3
FIN 301	INTRODUCTION TO FINANCIAL MANAGEMENT	3
MGT 301	ORGANIZATIONAL BEHAVIOR	3
MGT 403	CROSS-CULTURAL MANAGEMENT	3
MIS 301	INFORMATION SYSTEMS IN ORGANIZATIONS	3
MKT 301	PRINCIPLES OF MARKETING	3
MKT 440	GLOBAL MARKETING	3
OPS 301	SURVEY OF OPERATIONS MANAGEMENT	3
--- PHL 313 or REL 368	BUSINESS ETHICS (PHL 313) CHRISTIAN ETHICS AND THE BUSINESS WORLD (REL 368)	3
General elective <sup>8</sup>		3
Senior-Year		30
FIN 450	INTERNATIONAL BUSINESS FINANCE	3
INB 450	SEMINAR IN CURRENT GLOBAL ISSUES	3
MGT 490	MANAGING THE ENTERPRISE	3
General electives <sup>8</sup>		9
Business Communication Requirement <sup>7</sup>		3
PHL/REL elective <sup>8</sup>		3
INB elective		6

<sup>1</sup>A proficiency test for BAI 103L is available for those with adequate background.

<sup>2</sup>CMM 110, 111 and 113 may be taken during different years than indicated here. Some academic majors recommend taking some of these courses during the junior year. See faculty advisor for other sequencing possibilities.

<sup>3</sup>Students placed in ENG 114 or 198 must take a three semester hour nonbusiness elective.

<sup>4</sup>MTH 102 is recommended to be taken before MATH 128 for students with insufficient knowledge of secondary mathematics. MTH 102 does not count toward minimum graduation requirement.

<sup>5</sup>SBA majors must complete six hours of physical and life sciences. Select from biology, chemistry, physics, or geology. Majors may complete two introductory courses from different disciplines. No lab is required.

<sup>6</sup>SBA majors must complete an additional social science course in ANT, CJS, POL, PSY, SOC, or SWK; in addition to completing ECO 203 and 204, and an economics elective.

<sup>7</sup>Students starting Fall 2005: Select from ENG 370, ENG 372, or ENG 378.  
Student enrolled before Fall 2005: Select from ENG 370, ENG 372, ENG 378, CMM 321, CMM 322, CMM 344, CMM 351, or CMM 420.

<sup>8</sup>A minimum of 54 semester hours of all academic work must be at the 300-400 level.

Minor in International Business (INB)

			Sem. Hrs.
<b>International Business</b>			<b>12</b>
INB 450	SEMINAR IN CURRENT GLOBAL ISSUES		3
Approved INB electives - select three courses from: <sup>1,2</sup>			9
ACC 412	INTERNATIONAL ACCOUNTING		3
ECO 460	ECONOMIC DEVELOPMENT AND GROWTH		3
FIN 450	INTERNATIONAL BUSINESS FINANCE		3
MGT 403	CROSS-CULTURAL MANAGEMENT		3
MKT 440	GLOBAL MARKETING		3

<sup>1</sup>Appropriate prerequisites must be completed.

<sup>2</sup>Students may substitute one course from the following: Any 200, 300 or 400 level language course (Two 100 level courses count as one course.); ANT 315, 351, 352, or 406; BIO 395; CMM 414; ENG 203, 205, 306, 322, 348, 358, or 448; HST 315, 321, 322, 323, 326, 327, 328, 332, 333, 337, 339, 357, 358, 374, 382, or 383; ASI 390 or 398; PBL 355 or 362; POL 202, 214, 320-329, 331, 406, 407, 409, or 410; REL 201, 202, or 345. Other courses may be substituted for the above courses with the permission of the Director of International Business Programs.

### Courses (Collapse All Courses)

Code	Title	Sem. Hrs.
INB 300	TOPICS IN INTERNATIONAL BUSINESS AND CULTURE	1 - 3
Comparative analysis of various cultures and their impact on international business operation. May be taken more than once if the topics or cultures change.		
INB 450	SEMINAR IN CURRENT GLOBAL ISSUES	3
Seminar focusing on various contemporary international issues and regions; topics vary. Required of International Business majors and minors and students completing a Certificate in International Business		
INB 491	HONORS THESIS	3 - 6
Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the Honors Program and the International Business program director		
INB 492	HONORS THESIS	3
Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the Honors Program and the International Business program director		
INB 497	INTERNATIONAL INTERNSHIP	1 - 3
Practical international work experience closely associated with student's major, minor, certificate program. Permission of program director required. See internship coordinator for details		







## College of Arts and Sciences

### (INS) International Studies (Collapse Description)

International studies is a multidisciplinary major designed to meet the needs of students seeking the broadly based international perspective required for successful careers in education, government, international business, law, national and homeland security, humanitarian relief, and social entrepreneurship. The curriculum includes a core of required courses, a concentration, a foreign language requirement, an international and/or cross-cultural experiential component, and a senior capstone seminar. The experiential component may be satisfied through study abroad, internship, language immersion, service, or work experience. The Center for International Programs and the Center for Social Concern can assist students in identifying many of these opportunities.

A minor in international studies consists of twenty-one semester hours.

### International Studies Committee

David Darrow, Director  
 Bilocerkowycz (Political Science), Carlson (History), Cheney (Anthropology),  
 Fleischmann (History), Huff (Arts & Sciences), Kebede (Philosophy), Krugh  
 (Languages)

### Majors/Minors (Collapse All)

#### Major/Minor Name

Bachelor of Arts with a major in International Studies (Africa in World Affairs Concentration)  
 (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Africa in World Affairs)	

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Search Academic Information General Information

### Explore by Department / Program:

Health and Sport Science  
 History  
 International Business  
 International Studies

Explore

### Explore by Major / Minor:

International Studies (Marketing/Hu... (INS)  
 International Studies (Migration) (INS)  
 International Studies (Peace and Gl... (INS)  
 International Studies (Women's and ... (INS)

Explore

### Explore by Courses:

Integrated Natural Science Sequence (SCI)  
 Interdisciplinary Studies (ASI)  
 International Business (INB)  
 International Studies (INS)

Explore

ANT 356	3
HST 336, 337, 385	9
PHL 363, 365	6
REL 308	3
SOC 328	3

## Liberal Studies Curriculum

## Humanities and Fine Arts

Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies 0-9

Introduction to the University: ASI 150 0-1

**General Education courses/academic electives to total at least 124**

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

Bachelor of Arts with a major in International Studies (Certificate in International Business - Economics/Finance Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	

RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Certificate in International Business - Economics/Finance) <sup>7</sup>	
ACC 207, 208	6
FIN 301	3
INB 450	3
Select two courses from:	6
ACC 412	
ECO 460, 461	
FIN 450	
Select two courses from:	6
ANT 356	
HST 315, 326, 330, 332, 333, 334, 337, 353, 354, 356, 357, 382, 383	
POL 320, 321	
Liberal Studies Curriculum	
Humanities and Fine Arts	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may double count within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208 or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

<sup>7</sup>Students pursuing this concentration must take into account prerequisites or class standing restrictions. The certificate program includes ECO 203 and ECO 204, already core requirements for the major.

Bachelor of Arts with a major in International Studies (Certificate in International Business - Marketing/Human Resources Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3

REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Certificate in International Business - Marketing/HR) <sup>7</sup>	
ACC 207	3
INB 450	3
MGT 301	3
MKT 301	3
Select two courses from:	6
ECO 460	
MGT 403, 414	
MKT 340, 440	
Select two courses from:	6
ANT 356	
HST 315, 326, 330, 332, 333, 334, 337, 353, 354, 356, 357, 382, 383	
POL 320, 321	
Liberal Studies Curriculum	
Humanities and Fine Arts	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may double count within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208 or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

<sup>7</sup>Students pursuing this concentration must take into account prerequisites or class standing restrictions.

Bachelor of Arts with a major in International Studies (Cooperation and Change in the New Europe Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Cooperation and Change in the New Europe)	
HST 315	3
POL 320, 321	6
Select three courses from:	9
HST 313, 314, 321, 322, 326, 327, 353	
POL 331	
REL 366	
Select one course from:	3
PHL 352, 353, 354, 358 <sup>7</sup> , 360, 370 <sup>7</sup>	
POL 319	
Select one course from:	3
VAH 203, 450, 480, 483	
<b>Liberal Studies Curriculum</b>	
<b>Humanities and Fine Arts</b>	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
<b>Social Sciences</b>	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g. ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

<sup>7</sup>This course can be taken for this requirement only if not taken to fulfill the core requirement.

Bachelor of Arts with a major in International Studies (Global Economic Development Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Global Economic Development)	
ANT 320	3
ECO 460, 461	6
PHL 372	3
SOC 339	3
Select one course from:	3
POL 333	
SOC 371	
Select one course from:	3
PHL 355, 363, 365	
REL 304, 305, 306, 308	
Select one course from:	3

ANT 356  
HST 326, 330, 332, 333, 337, 354, 356, 357, 382, 383  
POL 321

#### Liberal Studies Curriculum

##### Humanities and Fine Arts

Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g. ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

Bachelor of Arts with a major in International Studies (Global Environmental Sustainability Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	

Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Global Environmental Sustainability)	
ASI 320	3
ECO 310	3
ENG 342	3
HST 342	3
POL 371	3
Select one course from:	3
BIO 359 <sup>7</sup> , 360 <sup>8</sup> , 395	
Select one course from:	3
PHL 321	
REL 365, 472	
Select one course from:	3
ANT 356	
HST 326, 330, 332, 333, 337, 357, 382, 383	
POL 320, 321	
Liberal Studies Curriculum	
Humanities and Fine Arts	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g. ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

<sup>7</sup>This course counts for biology majors, but is accessible to non-majors as well.

<sup>8</sup>This course is taught in Costa Rica. It counts for biology majors, but is open to non-majors as well.

Bachelor of Arts with a major in International Studies (International Journalism Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3



REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (International Journalism) <sup>7</sup>	
CMM 330, 331, 350, 355	12
CMS 414	3
SOC 343	3
Select one course from:	3
ANT 356	
HST 326, 330, 332, 333, 334, 337, 353, 354, 356, 357, 382, 383	
POL 320, 321	
Select one course from:	3
PHL 355, 363, 365	
REL 304, 305, 306, 307, 308	
 Liberal Studies Curriculum	
Humanities and Fine Arts	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11
 Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

<sup>7</sup>Students may substitute CMM 315, CMM 439, CMM 449, or a CMM course delivered in conjunction with a CMM summer education abroad program for one of the CMM or CMS courses when the topic has an international focus.

Bachelor of Arts with a major in International Studies (Marianist Social Transformation Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>66-71</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Marianist Social Transformation)	
ASI 358, (374 or 375)	6
MST 210, (310 or 311 or 312)	4
Select two courses from: <sup>7</sup>	6
PHL 327, 356	
POL 333	
REL 323, 324, 358	
SOC 334, 339, 371	
Select one course from:	3
PHL 355, 363, 365	
REL 304, 305, 306, 307, 308	
Select two courses from:	6
ANT 356	
HST 326, 330, 332, 333, 337, 353, 354, 356, 357, 382, 383	
POL 320, 321	
<b>Liberal Studies Curriculum</b>	
<b>Humanities and Fine Arts</b>	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
<b>Social Sciences</b>	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

<sup>7</sup>Must be from two different disciplines.

Bachelor of Arts with a major in International Studies (Migration Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Migration)	
HST 378	3
POL 333	3
SOC 328	3
- - - (ANT 368 or SOC 368)	3
Select one course from:	3
POL 334	
SOC 371	
Select one course from:	3
PHL 355, 363, 365	
REL 304, 305, 306, 307, 308	
Select two courses from:	6
ANT 356	

HST 326, 327, 330, 332, 333, 334, 337, 353, 354, 356,  
357, 382, 383  
POL 320, 321, 331

## Liberal Studies Curriculum

Humanities and Fine Arts	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

Bachelor of Arts with a major in International Studies (Peace and Global Security Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	
Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	

Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Peace and Global Security)	
ANT 320	3
POL 335, 406, 452	9
Select one course from:	3
HST 349, 373	
Select one course from:	3
PHL 317, 327	
Select one course from:	3
ANT 356	
HST 324, 326, 327, 332, 333, 334, 337, 357	
POL 320, 321, 331	
Select one course from:	3
PHL 355, 363, 365	
REL 304, 305, 306, 307, 308	
Liberal Studies Curriculum	
Humanities and Fine Arts	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

Bachelor of Arts with a major in International Studies (Women's and Gender Issues in a Global Context Concentration) (INS)

	Sem. Hrs.
<b>International Studies<sup>1</sup></b>	<b>65-70</b>
ANT 150, 306	6
ECO 203 <sup>2</sup> , 204 <sup>2</sup>	6
INS 250 <sup>3</sup> , (395 or 495) <sup>4</sup> , 499	5-10
POL 202	3
REL 363	3
Select one course from:	3
ASI 111	
HST 103, 198	

Select one course from:	3
PHL 358, 370	
Select one course from:	3
POL 101, 214	
Select one course from:	3
HST 375	
POL 408	
Select one course from: <sup>5</sup>	3
FRN 341, 361, 362, 381, 450, 452	
GER 351, 361, 362, 450	
ITA 361, 362	
RUS 361	
SPN 361, 362, 363, 364, 380, 450, 451, 471, 472, 480	
Foreign language appropriate to concentration <sup>6</sup>	6
Concentration (Women's and Gender Issues in a Global Context)	
WGS 150, 310	6
Select one course from:	3
REL 471, 474	
Select one course from:	3
SOC 322, 332	
Select one course from:	3
SOC 339, 371	
Select one course from:	3
PHIL 307, 364	
Select one course from:	3
HST 353, 354, 356	
Select one course from:	3
ANT 356	
HST 326, 330, 332, 333, 337, 357, 382, 383	
POL 320, 321	
 Liberal Studies Curriculum	
Humanities and Fine Arts	
Philosophy and Religious Studies	6
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11
 Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

<sup>1</sup>Courses taken for the major may also count toward completion of the Liberal Studies Curriculum.

<sup>2</sup>This course may count double within the major for students who opt to fulfill their concentration with one of the certificates in International Business.

<sup>3</sup>May substitute CMM 412, HST 301, POL 207, SOC 208, or another approved research methods course.

<sup>4</sup>Students unable to satisfy this requirement with a study abroad experience because of other commitments (e.g., ROTC members) must fulfill this requirement with an internationally oriented internship.

<sup>5</sup>Students studying a language for which a literature, culture, or film course does not currently exist must fulfill this requirement by taking ENG 205, ENG 322, or ENG 345.

<sup>6</sup>Must be at 300 level or above and exclusive of literature, film, or culture courses. There are currently no 300 level courses offered in Arabic or Mandarin Chinese. In these cases, students are required to complete the highest level course offered.

Minor in International Studies (INS)

	Sem. Hrs.
<b>International Studies</b>	<b>21</b>
ECO 204	3
POL 214	3
LNG elective (202-level or higher)	3
Select twelve additional semester hours (300- or 400-level) <sup>1</sup>	12

<sup>1</sup>Must be from at least three different disciplines, taken from International Studies core curriculum or concentrations.

### Courses (Collapse All Courses)

Code	Title	Sem. Hrs.
INS 250	RESEARCH METHODS	1
An introduction to the practice of locating and discussing finding aids and source materials needed to conduct research on international topics. <b>Prerequisite(s):</b> Permission of program director.		
INS 390	MODEL UNITED NATIONS	1
Examination of the work and procedures of the United Nations and its constituent bodies, study of various international issues and policies of member states, as well as of parliamentary diplomatic practices such as caucusing, resolution writing, and speech making in preparation for participation in Model United Nations simulations. <b>Prerequisite(s):</b> Permission of instructor.		
INS 395	INTERNATIONAL EXPERIENCE	1
Orientation for and evaluation of study abroad, internship, immersion, work, or service experience in a foreign country, organization involved in international activities, or a cross-cultural setting in the United States. Grading Option Two only.		
INS 399	INDEPENDENT STUDY	3
Independent reading and research on an interdisciplinary topic in international studies chosen by the student in consultation with one or more faculty members. May be repeated. <b>Prerequisite(s):</b> Permission of program director.		
INS 433	SEMINAR ON HUMAN RIGHTS SERVICE	1
An integrating seminar to guide reflection on the learning experience, future human rights and humanitarian challenges, and opportunities for service. Required for human rights minor and for INS human rights concentration. <b>Prerequisite(s):</b> (PHL 371 or POL 333); junior standing.		
INS 477	HONORS THESIS PROJECT	3
First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons. <b>Prerequisite(s):</b> Approval of University Honors Program.		
INS 478	HONORS THESIS PROJECT	3
Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic		

may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approved 477; approval of University Honors Program.

INS 495 INTERNATIONAL STUDIES INTERNSHIP

1 - 6

Practical, supervised experience with an approved organization dealing with international affairs. Repeatable up to six hours.

**Prerequisite(s):** Permission of program director.

INS 499 SENIOR CAPSTONE SEMINAR

3

Capstone seminar for International Studies seniors in which students integrate the academic and experiential components of their multidisciplinary degree program in a capstone research project of their own choosing.

**Prerequisite(s):** INS 250; senior status; permission of program director.

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College of Arts and Sciences

(LNG) Languages (Collapse Description)

The Department of Languages offers instruction in Arabic, Chinese (Mandarin), French, German, Italian, Latin, Russian, and Spanish and thus brings a distinctively international perspective to the university community. The language programs focus on the development of proficiency in speaking, writing, reading, and listening, and integrate the study of literature, linguistics, business and culture. The department also offers a few literature and culture courses taught in English (see CLA, HMS, FRN 350, 352, GER 350, 351, and SPN 350, 380).

Each summer, the Department of Languages conducts one-month language-immersion study programs in France, Germany, and Latin America or Spain (alternate years). Participants in these programs can earn up to seven semester hours of language credit at the advanced level.

Students in B.A. programs can acquire teacher licensure in French, German, or Spanish through the E6 or E11A programs (see EDT). For details consult the department chairperson.

All new students who have previously studied their language of choice continue their study in courses in which all enrolled students are at approximately the same level of proficiency. Students' proficiency levels for the first enrollment in a language class are determined by the results of the department's two-phase placement examination. Credit, but not placement, is awarded for scores of three or higher on the Advanced Placement language examinations.

Students may choose a major (twenty-five semester hours at the 300-level or higher) in a single language (French, German, or Spanish) or a composite major in two languages (one of which may be Italian). Many students combine a major in the department with a major in another discipline.

A minor in French, German, Italian, or Spanish consists of twelve semester hours at the 300-level or higher.

Courses beyond the 100-level in Latin and Russian are not offered on a regular basis. Please consult the department chairperson for details.

Faculty

Francisco Peñas-Bermejo, Chairperson  
Professors Emeriti: Conard, O'Meara, Romaguera  
Professors: Castro, Peñas-Bermejo  
Associate Professors: Cavour, Krugh, Mosher  
Assistant Professors: Chiodo, Costales, Work  
Lecturers: Figueroa, Hardman, Hatch, Tello-Sánchez, Schellhammer, Tanova, Williams

Majors/Minors (Collapse All)

Major/Minor Name

Bachelor of Arts with a major in French (FRN)

	Sem. Hrs.
<b>French<sup>1</sup></b>	<b>25-39</b>
FRN (311 or 312), (321 or 322)	6
Select two courses, including at least one in literature, from:	6
FRN 341, 360, 361, 362, 381, 450, 452	
FRN electives (300- or 400-level) <sup>1</sup>	12
LNG 495	1



- Search
- Academic Information
- General Information

Explore by Department / Program:

History

International Business

International Studies

Languages

Explore

Explore by Major / Minor:

Signals and Systems (SAS)

Social Work (SWK)

Sociology (SOC)

Spanish (SPN)

Explore

Explore by Courses:

Social Work (SWK)

Sociology, Anthropology and Social ... (SOC)

Sociology, Anthropology and Social ... (SWK)

Spanish (SPN)

Explore

## Liberal Studies Curriculum

## Humanities and Fine Arts

Philosophy and Religious Studies	12
History	6
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Literature: English or Foreign Language	3
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies 0-9

Introduction to the University: ASI 150 0-1

**General Education courses/academic electives to total at least 124**

<sup>1</sup>Only one literature in translation course may count toward the major. Students in the E11A program should note that courses in translation do not count toward the forty-five semester hours of a foreign language required for teacher certification.

Bachelor of Arts with a major in German (GER)

<b>German</b>	<b>Sem. Hrs. 25-39</b>
GER (311 or 312), (321 or 322)	6
Select two courses, including at least one in literature, from: GER 341, 361, 362, 450	6
GER electives (300- or 400-level) <sup>1</sup>	12
LNG 495	1

## Liberal Studies Curriculum

## Humanities and Fine Arts

Philosophy and Religious Studies	12
History	6
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Literature: English or Foreign Language	3
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies 0-9

Introduction to the University: ASI 150 0-1

**General Education courses/academic electives to total at least 124**

<sup>1</sup>Only one literature in translation course may count toward the major. Students in the E11A program should note that courses in translation do not count toward the forty-five semester hours of a foreign language required for teacher certification.

Bachelor of Arts with a major in Languages (LNG)

<b>Languages<sup>1</sup></b>	<b>Sem. Hrs. 25-39</b>
Composite major in Languages <sup>2</sup>	24
LNG 495	1

## Liberal Studies Curriculum

## Humanities and Fine Arts

Philosophy and Religious Studies	12
History	6
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Literature: English or Foreign Language	3
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies 0-9

Introduction to the University: ASI 150 0-1

**General Education courses/academic electives to total at least 124**

<sup>1</sup>Students in the E11A program should note that courses in translation do not count toward the forty-five semester hours of a foreign language required for teacher certification.

<sup>2</sup>Upper-level courses to total twenty-four semester hours distributed between two languages. Courses must include at least one three-semester-hour literature course, not including literature in translation. (Only one literature in translation may count toward the major.)

Bachelor of Arts with a major in Spanish (SPN)

<b>Spanish</b>	<b>Sem. Hrs.</b> <b>25-39</b>
SPN (311 or 312), (321 or 322)	6
Select two courses, at least one in literature, from:	6
SPN 341, 342, 361, 362, 363, 364, 450, 451, 471, 472	
SPN electives <sup>1</sup>	12
LNG 495	1

## Liberal Studies Curriculum

## Humanities and Fine Arts

Philosophy and Religious Studies	12
History	6
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3
Social Sciences	12
Literature: English or Foreign Language	3
Mathematics (excludes MTH 102, 204, 205)	3
Natural Sciences	11

Communication Competencies 0-9

Introduction to the University: ASI 150 0-1

**General Education courses/academic electives to total at least 124**

<sup>1</sup>Only one literature in translation course may count toward the major. Students in the E11A program should note that courses in translation do not count toward the forty-five semester hours of a foreign language required for teacher certification.

Minor in French (FRN)

<b>French</b>	<b>Sem. Hrs.</b> <b>12</b>
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Select twelve semester hours (300- or 400-level)	12
Minor in German (GER)	
	Sem. Hrs.
<b>German</b>	<b>12</b>
Select twelve semester hours (300- or 400-level)	12
Minor in Italian (ITA)	
	Sem. Hrs.
<b>Italian</b>	<b>12</b>
Select twelve semester hours (300- or 400-level)	12
Minor in Spanish (SPN)	
	Sem. Hrs.
<b>Spanish</b>	<b>12</b>
Select twelve semester hours (300- or 400-level)	12

**Courses (Collapse All Courses)**

Code	Title	Sem. Hrs.
ARA 101	BASIC PROFICIENCY IN ARABIC I	4
	Development of basic communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission is restricted to those who have not studied Arabic or have placed in this course by examination.	
ARA 141	BASIC PROFICIENCY IN ARABIC II	4
	Further development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Successful completion of this course includes the demonstration of the proficiency level required by the College of Arts and Sciences' Liberal Studies Curriculum. <b>Prerequisite(s):</b> ARA 101 or placement by examination.	
ARA 201	INTERMEDIATE ARABIC I	4
	Expansion and extension of proficiency and intercultural skills in reading, listening, writing, and speaking through conversation practice, reading assignments, composition assignments, and grammar exercises. <b>Prerequisite(s):</b> ARA 141 or placement by examination.	
ARA 202	INTERMEDIATE ARABIC II	4
	Continued development of proficiency and intercultural skills in reading, listening, writing, and speaking through conversation practice, reading assignments, composition assignments, and grammar exercises. <b>Prerequisite(s):</b> ARA 201 or placement by examination.	
CHI 101	BASIC PROFICIENCY IN MANDARIN CHINESE I	4
	Development of basic communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission is restricted to those who have not studied Mandarin Chinese or have placed into this course by examination.	
CHI 141	BASIC PROFICIENCY IN MANDARIN CHINESE II	4
	Further development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Successful completion of this course includes the demonstration of the proficiency level required by the College of Arts and Sciences' Liberal Studies Curriculum. <b>Prerequisite(s):</b> CHI 101 or placement by examination.	
CHI 201	INTERMEDIATE MANDARIN CHINESE I	4

Expansion and extension of proficiency and intercultural skills in reading, listening, writing, and speaking through conversation practice, reading assignments, composition assignments, and grammar exercises.

**Prerequisite(s):** CHI 141 or placement by examination.

CHI 202 INTERMEDIATE MANDARIN CHINESE II 4

Continued development of proficiency and intercultural skills in reading, listening, writing, and speaking through conversation practice, reading assignments, composition assignments, and grammar exercises.

**Prerequisite(s):** CHI 201 or placement by examination.

FRN 101 BASIC PROFICIENCY IN FRENCH I 4

Development of basic communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission is restricted to those who have not studied French or have placed into this course by examination.

FRN 131 INTENSIVE FUNDAMENTAL FRENCH 2

Intensive development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission restricted to those who have previous experience with the language and place into this course by examination. Credit granted for only ONE of the following: FRN 101 or 131.

FRN 141 BASIC PROFICIENCY IN FRENCH II 4

Further development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Successful completion of this course includes the demonstration of the proficiency level as described by the College of Arts and Sciences' Liberal Studies Curriculum.

**Prerequisite(s):** (FRN 101 or 131) or placement by examination.

FRN 201 INTERMEDIATE FRENCH I 3

Development of reading, listening, writing, and speaking skills. Language laboratory required.

**Prerequisite(s):** FRN 141.

FRN 202 INTERMEDIATE FRENCH II 3

Development of reading, listening, writing, and speaking skills. Language laboratory required.

**Prerequisite(s):** FRN 201.

FRN 270 INTERMEDIATE STUDY ABROAD 1 - 7

Intermediate intensive study in a foreign country/region whose everyday language is French. Instruction in language, culture and civilization. Conducted in French. Available only during the summer session. Repeatable when subtitle and content change.

**Prerequisite(s):** FRN 141 or equivalent.

FRN 311 FRENCH CONVERSATION I 3

Intensive practice in speaking French to develop oral communication skills. Emphasis on vocabulary development, listening comprehension, simulation of life-like situations, and discussions on French life and culture.

**Prerequisite(s):** FRN 202.

FRN 312 FRENCH CONVERSATION II 3

Intensive practice in speaking French to develop oral communication skills. Emphasis on vocabulary development, listening comprehension, simulation of life-like situations, and discussions on French life and culture.

**Prerequisite(s):** FRN 202.

FRN 321 FRENCH COMPOSITION I 3

Practice in composition on topics dealing with French life and culture. Systematic vocabulary enrichment, refinement of grammar, and assimilation of stylistic patterns. Emphasis on correct writing and creativity. Initiation into the concept of style in French prose.

**Prerequisite(s):** FRN 311 or 312.

- FRN 322 FRENCH COMPOSITION II 3  
Practice in composition on topics dealing with French life and culture. Systematic vocabulary enrichment, refinement of grammar, and assimilation of stylistic patterns. Emphasis on correct writing and creativity. Initiation into the concept of style in French prose.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 325 INTRODUCTION TO COMMERCIAL FRENCH 3  
Introduction to French business and the French position in international trade. Basic vocabulary of the office and the world of trade, introduction to formal correspondence and transactions.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 331 FRENCH PHONETICS AND DICTION 3  
Formation of the sounds of French, rules of pronunciation, use of phonetic transcription, practical exercises in interpretive reading. Recommended for French majors and required for prospective teachers.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 341 FRENCH CULTURE AND CIVILIZATION 3  
Introduction to the history of French civilization with emphasis on the arts and life in each major cultural period. Recommended for all French majors and minors.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 350 FRENCH LITERATURE IN TRANSLATION 3  
Course to acquaint students with major topics in French and Francophone literature. Conducted in English. Repeatable when subtitle and content change.
- FRN 352 OLD WORLD MEETS NEW (ENG) 3  
Readings of (1) non-fictional narratives regarding French encounters with American Indians in the sixteenth and seventeenth centuries and (2) literary and philosophical works on this topic. Conducted in English. Students receive credit for either FRN 352 or FRN 452, not both.
- FRN 360 EXPLICATION DE TEXTES 3  
Introduction to method of analyzing literary texts, both prose and poetry. Elements of French versification. Recommended for all French majors and prospective teachers.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 361 SURVEY OF FRENCH LITERATURE I 3  
Major texts, trends, authors from the Middle Ages to the present, showing influences and continuity. Lectures, discussions, oral and written reports. Recommended for all French majors and prospective teachers.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 362 SURVEY OF FRENCH LITERATURE II 3  
Major texts, trends, authors from the Middle Ages to the present, showing influences and continuity. Lectures, discussions, oral and written reports. Recommended for all French majors and prospective teachers.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 370 ADVANCED STUDY ABROAD 1 - 7  
Advanced intensive study in a foreign country/region whose everyday language is French, treating its language, culture, and civilization. Conducted in French. Available only during the summer session. Repeatable when subtitle and content change.  
**Prerequisite(s):** FRN 202 or equivalent.
- FRN 381 HISTORY OF FRENCH CINEMA 3  
A survey of the trends, styles, and principal directors in the history of French cinema. Discussion of personal, social, and cultural values portrayed in films.  
**Prerequisite(s):** FRN 311 or 312.

- FRN 450 FRENCH LITERATURE 3  
Lectures and discussion concentrating on specialized genres, periods, or authors. Repeatable when subtitle and content change.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 452 OLD WORLD MEETS NEW (FRN) 3  
Readings of (1) non-fictional narratives regarding French encounters with American Indians in the sixteenth and seventeenth centuries and (2) literary and philosophical works on this topic. Conducted in French. Students receive credit for either FRN 352 or FRN 452, not both.  
**Prerequisite(s):** FRN 311 or 312.
- FRN 469 FRENCH LINGUISTICS 3  
A synchronic analysis of modern French language, including a contrast of the French sound system, morphology, and syntax with English structures; the historical derivation of French, creolization, and approaches to teaching French to English-speaking persons. Conducted in French.  
**Prerequisite(s):** (FRN 311 or 312); LNG 468.
- FRN 477 HONORS THESIS PROJECT 3  
First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.  
**Prerequisite(s):** Approval of University Honors Program.
- FRN 478 HONORS THESIS PROJECT 3  
Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.  
**Prerequisite(s):** Approved 477; approval of University Honors Program.
- FRN 491 INDEPENDENT STUDY 1 - 3  
Independent research project under the guidance of an instructor. Admission to project and number of semester hours require approval of the chairperson.  
**Prerequisite(s):** FRN 202; permission of department chairperson.
- GER 101 BASIC PROFICIENCY IN GERMAN I 4  
Development of basic communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission is restricted to those who have not studied German or have placed into this course by examination.
- GER 131 INTENSIVE FUNDAMENTAL GERMAN 2  
Intensive development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission restricted to those who have previous experience with the language and place into this course by examination. Credit granted for only ONE of the following: GER 101 or 131.
- GER 141 BASIC PROFICIENCY IN GERMAN II 4  
Further development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Successful completion of this course includes the demonstration of the proficiency level as described by the College of Arts and Sciences' Liberal Studies Curriculum.  
**Prerequisite(s):** (GER 101 or 131) or placement by examination.
- GER 201 INTERMEDIATE GERMAN I 3

Systematic grammar review. Increased use of the language in written exercises and classroom discussions based on readings. Exposure to the development of German civilization and culture.

**Prerequisite(s):** GER 141.

GER 202 INTERMEDIATE GERMAN II

3

Systematic grammar review. Increased use of the language in written exercises and classroom discussions based on readings. Exposure to the development of German civilization and culture.

**Prerequisite(s):** GER 201.

GER 311 GERMAN CONVERSATION I

3

Practice to increase listening comprehension and fluency in speaking about topics from the personal and everyday to issues of current interest with focus on describing and narrating in paragraph-length structures. In-depth exploration of cultural commonalities and differences between the German-speaking countries and the United States. Focus on development of vocabulary and practice of expressions essential for oral communication. May be taken in either sequence.

**Prerequisite(s):** GER 202.

GER 312 GERMAN CONVERSATION II

3

Practice to increase listening comprehension and fluency in speaking about topics from the personal and everyday to issues of current interest with focus on describing and narrating in paragraph-length structures. In-depth exploration of cultural commonalities and differences between the German-speaking countries and the United States. Focus on development of vocabulary and practice of expressions essential for oral communication. May be taken in either sequence.

**Prerequisite(s):** GER 202.

GER 321 GERMAN COMPOSITION I

3

Practice in personal and topical writing in German that seeks to develop the ability to write well-structured paragraphs. Systematic vocabulary building and grammatical refinement and review. Readings on key issues of the day and/or topics providing crucial insight into German and European thinking and concerns. May be taken in either sequence.

**Prerequisite(s):** GER 311 or 312.

GER 322 GERMAN COMPOSITION II

3

Practice in personal and topical writing in German that seeks to develop the ability to write well-structured paragraphs. Systematic vocabulary building and grammatical refinement and review. Readings on key issues of the day and/or topics providing crucial insight into German and European thinking and concerns. May be taken in either sequence.

**Prerequisite(s):** GER 311 or 312.

GER 325 COMMERCIAL GERMAN

3

Introduction to the business language, customs, and economic profile of the German-speaking countries. Vocabulary of the office and world of trade. Business correspondence. Germany's economic and cultural position and goals within the context of the European Union and the world. Course provides an introduction to working in an international business setting.

**Prerequisite(s):** (GER 311 or 312) or equivalent.

GER 341 GERMAN CULTURE AND CIVILIZATION

3

Introduction to German culture and civilization with emphasis on the arts, intellectual developments, and life in various periods of German history. Conducted in German.

**Prerequisite(s):** GER 311 or 312.

GER 342 GERMANY AND THE NEW EUROPE

3

Examination of developments in the life and culture, and the political, economic, and social realities in Germany from the end of WWI to the reunited country of today which is the largest member of EU. Course also explores the ideas and ideals on which the EU is founded, its present influence in the world, and how this new Europe differs from the United States of America. Conducted in German.



**Prerequisite(s):** (GER 311 or 312) or equivalent.

GER 350 GERMAN LITERATURE IN TRANSLATION 3  
Course to acquaint students with major German writers and literary movements. Conducted in English. Repeatable when subtitle and content change.

GER 351 GERMAN FILM 3  
Introduction to the aesthetic and thematic richness of German film. Students will study the cinema of the Weimar Republic within its historical context and its appropriation by Hollywood. This course will also introduce cross-cultural films having to do with identity, women, immigrant workers, asylum seekers, postcolonialization, nationalism, social theory, ideology, and political activism.  
**Prerequisite(s):** GER 311 or 312.

GER 361 SURVEY OF GERMAN LITERATURE I 3  
German literary works from 1750 to the present reflecting the philosophy, aesthetics, and concerns of the time. Skills development for reading literary and cultural texts and writing on analytic and interpretative topics. May be taken in either sequence.  
**Prerequisite(s):** ((GER 311 or 312); (GER 321 or 322)) or equivalent.

GER 362 SURVEY OF GERMAN LITERATURE II 3  
German literary works from 1750 to the present reflecting the philosophy, aesthetics, and concerns of the time. Skills development for reading literary and cultural texts and writing on analytic and interpretative topics. May be taken in either sequence.  
**Prerequisite(s):** ((GER 311 or 312); (GER 321 or 322)) or equivalent.

GER 370 STUDY ABROAD 1 - 6  
Intensive study in a foreign country whose everyday language is German, treating the culture and civilization of the country. Conducted in German. Available only during the summer session. Repeatable when subtitle and content change.  
**Prerequisite(s):** GER 202.

GER 450 GERMAN LITERATURE 3  
Lectures and discussions in German in such specialized areas as Medieval lyric, Romanticism, twentieth-century novel, modern drama, and individual authors. Repeatable when subtitle and content change.  
**Prerequisite(s):** GER 311 or 312.

GER 469 GERMAN LINGUISTICS 3  
A synchronic analysis of modern German language, including a contrast of the German sound system, morphology, and syntax with English structures; the historical derivation of German, the modern German dialects, and approaches to teaching German to English-speakers. Conducted in German.  
**Prerequisite(s):** (GER 311 or 312); LNG 468.

GER 477 HONORS THESIS PROJECT 3  
First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.  
**Prerequisite(s):** Approval of University Honors Program.

GER 478 HONORS THESIS PROJECT 3  
Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approved 477; approval of University Honors Program.

GER 491 INDEPENDENT STUDY 1 - 3

Independent research project under the guidance of an instructor. Admission to project and number of semester hours require approval of chairperson.

**Prerequisite(s):** GER 202; permission of instructor.

HND 101 BEGINNING HINDI I 3

Development of fundamental communication skills in reading, listening, writing, and speaking through extensive practice in language use. Admission to 101 restricted to those who have not studied Hindi or have placed into that course by examination. Offered only in India in connection with the B.A. Program in Philosophy. Credit is granted for only one of the following: HND 101-102 or HND 121.

HND 102 BEGINNING HINDI II 3

Development of fundamental communication skills in reading, listening, writing, and speaking through extensive practice in language use. Admission to 102 is open only to those who have successfully completed 101. Offered only in India in connection with the B.A. Program in Philosophy. Credit is granted for only one of the following: HND 101-102 or HND 121.

HND 121 ELEMENTARY HINDI 4

Review and further development of fundamental communication skills in reading, listening, writing, and speaking. Admission restricted to those who have studied the language for at least two years and place into the course by examination. Offered only in India in connection with the B.A. Program in Philosophy. Credit granted for only one of the following: HND 101-102 or HND 121.

HND 141 BASIC PROFICIENCY IN HINDI 3

Further development of communication skills in reading, listening, writing, and speaking. Admission by examination or successful completion of HND 102 or HND 121. Successful completion of this course includes the demonstration of the minimal level of proficiency required for the College of Arts and Sciences' Liberal Studies Curriculum. Offered only in India in connection with the B.A. Program in Philosophy.

HND 201 INTERMEDIATE HINDI I 3

Review of the essentials of grammar, intensive conversation and comprehension exercises, reading of graded modern prose and poetry; brief essays in Hindi. Offered only in India in connection with the B.A. Program in Philosophy.

**Prerequisite(s):** HND 141; previous study of elementary Hindi in school or elsewhere; ability to speak, read, understand, and write simple Hindi.

HND 202 INTERMEDIATE HINDI II 3

Review of the essentials of grammar, intensive conversation and comprehension exercises, reading of graded modern prose and poetry; brief essays in Hindi. Offered only in India in connection with the B.A. Program in Philosophy.

**Prerequisite(s):** HND 201.

ITA 101 BEGINNING ITALIAN 4

Development of fundamental communication skills in reading, listening, writing, and speaking through extensive practice in language use. No previous study of Italian is presupposed.

ITA 101A BEGINNING ITALIAN I 2

Development of fundamental communication skills in reading, listening, writing, and speaking through extensive practice in language use.

ITA 101B BEGINNING ITALIAN II 2

Development of fundamental communication skills in reading, listening, writing, and speaking through extensive practice in language use.

**Prerequisite(s):** ITA 101A.

ITA 141	BASIC PROFICIENCY IN ITALIAN	4
Further development of communication skills in reading, listening, writing, and speaking. Admission by the successful completion of 101 or permission. Successful completion of this course includes demonstration of the minimal level of proficiency required for the College of Arts and Sciences' Liberal Studies Curriculum.		
<b>Prerequisite(s):</b> ITA 101 or permission of instructor.		
ITA 201	INTERMEDIATE ITALIAN I	3
Development of reading, listening, writing, and speaking skills. Conversation practice, oral reports, reading assignments, composition assignments, and grammar exercises. The course is conducted in Italian.		
<b>Prerequisite(s):</b> ITA 141.		
ITA 202	INTERMEDIATE ITALIAN II	3
Development of reading, listening, writing, and speaking skills. Conversation practice, oral reports, reading assignments, composition assignments, and grammar exercises. The course is conducted in Italian.		
<b>Prerequisite(s):</b> ITA 201.		
ITA 313	COMMUNICATING IN ITALIAN I	3
Intensive practice in speaking and writing Italian at an advanced level. Emphasis on building vocabulary, learning correct idiomatic usage, increasing fluency, and improving syntax and style. The course is conducted in Italian. ITA 313 and 314 may be taken in either sequence.		
<b>Prerequisite(s):</b> ITA 202.		
ITA 314	COMMUNICATING IN ITALIAN II	3
Intensive practice in speaking and writing Italian at an advanced level. Emphasis on building vocabulary, learning correct idiomatic usage, increasing fluency, and improving syntax and style. The course is conducted in Italian. ITA 313 and 314 may be taken in either sequence.		
<b>Prerequisite(s):</b> ITA 202.		
ITA 341	ITALIAN CULTURE AND CIVILIZATION I	3
Survey of the major historical and cultural events in Italy from the Middle Ages to the present. All readings, lectures, discussions, reports, and tests are in Italian. ITA 341 and 342 may be taken in either sequence.		
<b>Prerequisite(s):</b> ITA 202.		
ITA 342	ITALIAN CULTURE AND CIVILIZATION II	3
Survey of the major historical and cultural events in Italy from the Middle Ages to the present. All readings, lectures, discussion, reports, and tests are in Italian. ITA 341 and 342 may be taken in either sequence.		
<b>Prerequisite(s):</b> ITA 202.		
ITA 361	SURVEY OF ITALIAN LITERATURE I	3
Italian literature from its beginnings in the thirteenth century to the present. Principal writers and literary trends; the techniques of literary analysis. Lectures, discussions, readings, and papers are in Italian. ITA 361 and 362 may be taken in either sequence.		
<b>Prerequisite(s):</b> ITA 202.		
ITA 362	SURVEY OF ITALIAN LITERATURE II	3
Italian literature from its beginnings in the thirteenth century to the present. Principal writers and literary trends; the techniques of literary analysis. Lectures, discussions, readings, and papers are in Italian. ITA 361 and 362 may be taken in either sequence.		
<b>Prerequisite(s):</b> ITA 202.		
ITA 491	INDEPENDENT STUDY	1 - 3
Independent research project under the guidance of an instructor. Admission to project and number of semester hours require approval of chairperson.		
<b>Prerequisite(s):</b> ITA 202 or permission of instructor.		
LAT 101	BASIC PROFICIENCY IN LATIN I	4

Development of basic skills in reading, listening, and writing through extensive practice in language use. Admission is restricted to those who have not studied Latin or have placed into this course by examination.

- |   |                               |       |
|---|-------------------------------|-------|
| LAT 131   | INTENSIVE FUNDAMENTAL LATIN   | 2     |
| Intensive development of fundamental skills in reading, listening, and writing through extensive practice in language use. Admission restricted to those who have previous experience with the language and place into this course by examination. Credit granted for only ONE of the following: LAT 101 or 131.  |                               |       |
| LAT 141   | BASIC PROFICIENCY IN LATIN II | 4     |
| Further development of fundamental skills in reading, listening, and writing through extensive practice in language use. Successful completion of this course includes the demonstration of the proficiency level as described by the College of Arts and Sciences' Liberal Studies Curriculum.<br><b>Prerequisite(s):</b> (LAT 101 or 131) or placement by examination.  |                               |       |
| LAT 201   | INTERMEDIATE LATIN I          | 3     |
| Systematic review of grammar, exercises in vocabulary development, readings from Caesar, Cicero, Virgil, or Ovid.<br><b>Prerequisite(s):</b> LAT 141.   |                               |       |
| LAT 202   | INTERMEDIATE LATIN II         | 3     |
| Systematic review of grammar, exercises in vocabulary development, readings from Caesar, Cicero, Virgil, or Ovid.<br><b>Prerequisite(s):</b> LAT 201.   |                               |       |
| LAT 321   | LATIN COMPOSITION AND SYNTAX  | 3     |
| Practice in writing Latin, for enrichment of vocabulary, refinement of grammar, and control of major Latin prose styles.<br><b>Prerequisite(s):</b> LAT 202.  |                               |       |
| LAT 350   | LATIN LITERATURE              | 3     |
| Advanced readings in a particular author or genre (epic, drama, history, philosophy). Repeatable when subtitle and content change.<br><b>Prerequisite(s):</b> LAT 202.  |                               |       |
| LAT 491   | INDEPENDENT STUDY             | 1 - 3 |
| Independent research project under the guidance of an instructor. Admission to project and number of semester hours require approval of chairperson.<br><b>Prerequisite(s):</b> LAT 202 or permission of department chairperson.  |                               |       |
| LNG 101   | BEGINNING LANGUAGE STUDY      | 4     |
| Development of fundamental communication skills in reading, listening, writing, and speaking with a focus on basic proficiency in survival communication, and familiarization with culture in languages other than those regularly taught in the Department of Languages. May be offered through distance learning or study abroad with the support of the Department of Languages. No previous study of the language is presupposed (for 101 only). Offered with different suffixes according to the language studied. |                               |       |
| LNG 141   | BASIC PROFICIENCY IN LANGUAGE | 4     |
| Further development of communication skills in reading, listening, writing, and speaking with a focus on basic proficiency in survival communication, and familiarization with culture in languages other than those regularly taught in the Department of Languages. Offered with different suffixes according to the language studied.<br><b>Prerequisite(s):</b> LNG 101 in the same language or equivalent.   |                               |       |
| LNG 201   | INTERMEDIATE LANGUAGE I       | 4     |
| Expansion and extension of listening, speaking, reading, and writing skills through conversation practice, reading assignments, composition assignments, and grammar exercises. Offered with different suffixes according to the language studied.<br><b>Prerequisite(s):</b> LNG 141 in the same language or equivalent.   |                               |       |

LNG 202	INTERMEDIATE LANGUAGE II	4
Continued development of proficiency in listening, speaking, reading and writing through conversation practice, reading assignments, composition assignments, and grammar exercises. Offered with different suffixes according to the language studied.		
<b>Prerequisite(s):</b> LNG 201 in the same language or equivalent.		
LNG 320	INSTRUCTED SECOND LANGUAGE ACQUISITION	2
Study of cognitive, linguistic, sociolinguistic, and constructivist approaches to instructed second language acquisition, including the relationship between classroom interaction and language acquisition.		
LNG 330	TEACHING WORLD LANGUAGES IN THE ELEMENTARY SCHOOL (PK-6)	4
An introduction to the pedagogical, philosophical, and psychological aspects of teaching foreign languages in elementary school. Topics: national and state standards, learners with special needs, reading in the foreign language, and professional associations.		
<b>Prerequisite(s):</b> EDT 110; at least two 300-level courses in the language to be taught.		
LNG 468	INTRODUCTION TO LINGUISTICS	3
Survey of the various aspects of a scientific description of human language: phonetics, phonology, morphology, syntax, semantics, and pragmatics. Interdisciplinary exploration of the reciprocal impact of linguistics on psychology, sociology, and language acquisition theory.		
<b>Prerequisite(s):</b> CMM 110 or equivalent; ENG 102 or equivalent.		
LNG 477	HONORS THESIS PROJECT	3
First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.		
<b>Prerequisite(s):</b> Approval of University Honors Program.		
LNG 478	HONORS THESIS PROJECT	3
Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.		
<b>Prerequisite(s):</b> Approved 477; approval of University Honors Program.		
LNG 495	THE LANGUAGE MAJOR IN PROFESSIONAL CAREERS	1
Exploration of life-long learning opportunities to maintain and increase functional proficiency in the language studied; the relationship between language proficiency and cross-cultural studies and the application of language proficiency in the work place; determination of the student's proficiency-level at the conclusion of the undergraduate experience. Required of declared majors in languages (FRN, GER, LNG, and SPN). Taught in English.		
<b>Prerequisite(s):</b> Completion of 18 credit hours of upper-division courses in language major.		
RUS 101	BASIC PROFICIENCY IN RUSSIAN I	4
Development of basic communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission is restricted to those who have not studied Russian or have placed into this course by examination.		
RUS 141	BASIC PROFICIENCY IN RUSSIAN II	4

Further development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Successful completion of this course includes the demonstration of the proficiency level required by the College of Arts and Sciences' Liberal Studies Curriculum.

**Prerequisite(s):** RUS 101 or placement by examination.

RUS 201 INTERMEDIATE RUSSIAN I 3

Review of the essentials of grammar, intensive conversation and comprehension exercises, reading of graded modern and contemporary prose and poetry.

**Prerequisite(s):** RUS 141.

RUS 202 INTERMEDIATE RUSSIAN II 3

Review of the essentials of grammar, intensive conversation and comprehension exercises, reading of graded modern and contemporary prose and poetry.

**Prerequisite(s):** RUS 201.

RUS 311 RUSSIAN CONVERSATION I 3

Vocabulary development, pattern drills, and the use of idioms in discussion and oral reports centered on Russian life and culture. RUS 311 and 312 may be taken in either sequence.

**Prerequisite(s):** RUS 202.

RUS 312 RUSSIAN CONVERSATION II 3

Vocabulary development, pattern drills, and the use of idioms in discussion and oral reports centered on Russian life and culture. RUS 311 and 312 may be taken in either sequence.

**Prerequisite(s):** RUS 202.

RUS 321 RUSSIAN COMPOSITION 3

Practice in composition on topics dealing with Russian life and culture; personal and business letters. Short weekly assignments to build vocabulary and control of idioms.

**Prerequisite(s):** RUS 202.

RUS 361 SURVEY OF RUSSIAN LITERATURE 3

Russian literature and its development during the nineteenth and twentieth centuries. Study of exemplary works and literary movements.

**Prerequisite(s):** RUS 202.

RUS 491 INDEPENDENT STUDY 1 - 6

Independent study under the guidance of an instructor. Admission to course and number of semester hours require approval of chairperson. Repeatable when content changes.

SPN 101 BASIC PROFICIENCY IN SPANISH I 4

Development of basic communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission is restricted to those who have not studied Spanish or have placed into this course by examination.

SPN 131 INTENSIVE FUNDAMENTAL SPANISH 2

Intensive development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Admission restricted to those who have previous experience with the language and place into this course by examination. Credit granted for only ONE of the following: SPN 101 or 131.

SPN 141 BASIC PROFICIENCY IN SPANISH II 4

Further development of fundamental communication and intercultural skills in reading, listening, writing, and speaking through extensive practice in language use. Successful completion of this course includes the demonstration of the proficiency level as described by the College of Arts and Sciences' Liberal Studies Curriculum.

**Prerequisite(s):** (SPN 101 or 131) or placement by examination.

SPN 201	INTERMEDIATE SPANISH I	3
Intensive development of the basic principles of Spanish through writing and conversation, stressing fluency. Language laboratory required.		
<b>Prerequisite(s):</b> SPN 141.		
SPN 202	INTERMEDIATE SPANISH II	3
Intensive development of the basic principles of Spanish through writing and conversation, stressing fluency. Language laboratory required.		
<b>Prerequisite(s):</b> SPN 201.		
SPN 270	STUDY ABROAD	1 - 6
Intensive study in a foreign country whose everyday language is Spanish, treating the culture and civilization of the country. Conducted in Spanish. Available only during the summer session. Repeatable when subtitle and content change.		
<b>Prerequisite(s):</b> SPN 141 or equivalent.		
SPN 311	SPANISH CONVERSATION I	3
Development of fluency in the vocabulary and idioms of the spoken language through discussion of topics related to contemporary life in the Hispanic world.		
<b>Prerequisite(s):</b> SPN 202.		
SPN 312	SPANISH CONVERSATION II	3
Development of fluency in the vocabulary and idioms of the spoken language through discussion of topics related to contemporary life in the Hispanic world.		
<b>Prerequisite(s):</b> SPN 311.		
SPN 321	SPANISH COMPOSITION I	3
Practice in composition on a variety of topics. Systematic refinement and mastery of grammar and assimilation of stylistic patterns. Emphasis on developing facility in writing clearly and correctly in Spanish.		
<b>Prerequisite(s):</b> SPN 311 or 312.		
SPN 322	SPANISH COMPOSITION II	3
Practice in composition on a variety of topics. Systematic refinement and mastery of grammar and assimilation of stylistic patterns. Emphasis on developing facility in writing clearly and correctly in Spanish.		
<b>Prerequisite(s):</b> SPN 321.		
SPN 325	COMMERCIAL SPANISH	3
Introduction to commercial correspondence as a basis for developing skills in writing Spanish business letters and other correspondence.		
<b>Prerequisite(s):</b> SPN 311 or 312.		
SPN 341	SPANISH CULTURE AND CIVILIZATION	3
Readings and discussions on the historical, social, political, and cultural phenomena of Spain. Conducted in Spanish.		
<b>Prerequisite(s):</b> SPN 311 or 312.		
SPN 342	IBERO-AMERICAN CULTURE AND CIVILIZATION	3
Readings and discussions on the historical, social, political, and cultural phenomena of Ibero-America. Conducted in Spanish.		
<b>Prerequisite(s):</b> SPN 311 or 312.		
SPN 350	HISPANIC LITERATURE IN TRANSLATION	3
Course to acquaint students with major Spanish and Spanish-American writers and literary movements. Conducted in English. Repeatable when subtitle and content change.		
SPN 361	SURVEY OF SPANISH LITERATURE I	3
Readings and analysis of the works of major Spanish authors and discussion of the principal literary trends in Spain from the Middle Ages to the twentieth century. Lectures, discussions, and assignments in Spanish.		
<b>Prerequisite(s):</b> SPN 311 or 312.		



- SPN 362 SURVEY OF SPANISH LITERATURE II 3  
Readings and analysis of the works of major Spanish authors and discussion of the principal literary trends in Spain from the Middle Ages to the twentieth century. Lectures, discussions, and assignments in Spanish.  
**Prerequisite(s):** SPN 311 or 312.
- SPN 363 SURVEY OF SPANISH-AMERICAN LITERATURE I 3  
Readings and analysis of the works of major Spanish-American authors and discussion of the principal literary trends in Spanish America from Discovery and Conquest through Realism and Naturalism. Conducted in Spanish.  
**Prerequisite(s):** SPN 311 or 312.
- SPN 364 SURVEY OF SPANISH-AMERICAN LITERATURE II 3  
Readings and analysis of the works of major Spanish-American authors and discussion of the principal literary trends in Spanish America from Modernism through the present day. Conducted in Spanish.  
**Prerequisite(s):** SPN 311 or 312.
- SPN 370 STUDY ABROAD 1 - 6  
Intensive study in a foreign country whose everyday language is Spanish, treating the culture and civilization of the country. Conducted in Spanish. Available only during the summer session. Repeatable when subtitle and content change.  
**Prerequisite(s):** SPN 202.
- SPN 380 SPANISH AND IBERO-AMERICAN CINEMA 3  
Introduction to cinematography and culture of Spanish and Ibero-American countries, emphasizing themes related to human rights (Socioeconomic, class, sexuality, gender, ethnicity), as well as critical and theoretical perspectives on films from these regions. Conducted in English.  
**Prerequisite(s):** ENG 102 or equivalent.
- SPN 450 TOPICS IN SPANISH LITERATURE 3  
Lectures and discussions concentrating on specialized genres, periods, or authors of Peninsular literature prior to the twentieth century. Conducted in Spanish. Repeatable when subtitle and content change.  
**Prerequisite(s):** SPN 311 or 312.
- SPN 451 TOPICS IN SPANISH-AMERICAN LITERATURE 3  
Lectures and discussions concentrating on specialized genres, periods, or authors of Spanish-American literature prior to the twentieth century. Conducted in Spanish. Repeatable when subtitle and content change.  
**Prerequisite(s):** SPN 311 or 312.
- SPN 469 SPANISH LINGUISTICS 3  
A synchronic analysis of modern Spanish language, including a contrast of the Spanish sound system, morphology, and syntax with English structures; the historical derivation of Spanish, the modern Spanish dialects (Spain and Latin America), and approaches to teaching Spanish to English speakers. Conducted in Spanish.  
**Prerequisite(s):** LNG 468; (SPN 311 or 312).
- SPN 471 TOPICS IN SPANISH LITERATURE OF THE TWENTIETH CENTURY 3  
Lectures and discussions concentrating on specialized periods, genres, or authors of twentieth-century Peninsular literature. Conducted in Spanish. Repeatable when subtitle and content change.  
**Prerequisite(s):** SPN 311 or 312.
- SPN 472 TOPICS IN SPANISH-AMERICAN LITERATURE OF THE TWENTIETH CENTURY 3  
Lectures and discussions concentrating on specialized periods, genres or authors of twentieth-century Spanish-American literature. Conducted in Spanish. Repeatable when subtitle and content change.  
**Prerequisite(s):** SPN 311 or 312.
- SPN 477 HONORS THESIS PROJECT 3



First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approval of University Honors Program.

SPN 478 HONORS THESIS PROJECT 3

Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approved 477; approval of University Honors Program.

SPN 480 SPANISH AND IBERO-AMERICAN CINEMA 3

Introduction to cinematography and culture of Spanish and Ibero-American countries, emphasizing themes related to human rights (socioeconomic, class, sexuality, gender, ethnicity), as well as critical and theoretical perspectives on films from these regions. Conducted in Spanish.

**Prerequisite(s):** SPN 312 or equivalent; SPN 342 recommended.

SPN 491 INDEPENDENT STUDY 1 - 3

Independent research project under the guidance of an instructor. Admission to project and number of semester hours require approval of chairperson.

**Prerequisite(s):** SPN 202; permission of department chairperson.

SPN 497 SERVICE LEARNING EXPERIENCE 1 - 3

Supervised service experience or project which requires the use of Spanish. Repeatable up to a total of three semester hours.

**Prerequisite(s):** SPN 311 or equivalent.





## School of Business Administration

### (MGT) Management and Marketing (Collapse Description)

The management program offered by the management/marketing department includes a major or minor in two distinct areas: leadership and entrepreneurship. The department also offers a major or a minor in marketing.

#### Faculty

Dean B. McFarlin, Chairperson  
 NCR Professor of Global Leadership Development: McFarlin  
 Professors: Bickford, King, McFarlin, Sweeney  
 Associate Professors: Janney, Kiewitz, Lau, Schenk  
 Assistant Professors: Meek, Sullivan  
 Lecturers: Chelle, Forlani, Gentner, Miller  
 Adjunct Faculty: Csokasy, Dudon, Franks, Kairis, Neff, Wood

Sub-Categories / Concentrations / Focus Areas

Entrepreneurship                      Leadership  
 Marketing

### Courses (Collapse All Courses)

Code	Title	Sem. Hrs.
MGT 201	LEGAL ENVIRONMENT OF BUSINESS	3
	Survey of the legal environment in which businesses operates. Includes overview of legal system and judicial processes and coverage of constitutional principles for U.S. legal system, ways to resolve legal disputes, forms of business organization, legal issues relevant to employment, legal responsibility of businesses to clients and customers, and liability issues. <b>Prerequisite(s):</b> Sophomore standing.	
MGT 220	ENTREPRENEURSHIP SOPHOMORE EXPERIENCE I	2
	First of two-course sequence. Designed to immerse Entrepreneurship major into the dynamics of starting and running a micro-business. Focuses on identifying market need, researching financial viability of business venture to meet that need, and marshalling the resources (among them, financial, human, technical, and motivational) to launch the business. Course is coordinated through the Crotty Center for Entrepreneurial Leadership. <b>Prerequisite(s):</b> Entrepreneurship major; sophomore standing; overall 2.7 GPA. <b>Corequisite(s):</b> ACC 207; MGT 201.	
MGT 221	ENTREPRENEURSHIP SOPHOMORE EXPERIENCE II	1
	Continuation of MGT 220. Focuses on growing and running the micro-business throughout the academic year with planned liquidation or shutdown by the end of the academic year. Course is coordinated through the Crotty Center for Entrepreneurial Leadership. <b>Prerequisite(s):</b> ACC 207; MGT 201, 220; Entrepreneurship major; overall 2.7 GPA. <b>Corequisite(s):</b> ACC 208.	
MGT 301	ORGANIZATIONAL BEHAVIOR	3
	Study of individual, group, and team behavior in organizations as they interact to achieve both personal and organizational goals. Topics include individual differences, interpersonal communication, leadership, decision-making, reward systems, conflict management, and work groups and teams	

## the Bulletin

AUGUST 2009 - UNDERGRADUATE ISSUE

→ Explore a Different Issue

Search Academic Information General Information

#### Explore by Department / Program:

International Business  
 International Studies  
 Languages  
 Management and Marketing

Explore

#### Explore by Major / Minor:

Accounting (ACC)  
 Adolescence to Young Adult Educatio... (EYA)  
 Aerospace Engineering (AAE)  
 Aerospace Engineering Concentration (AEC)

Explore

#### Explore by Courses:

Italian (ITA)  
 Languages (LNG)  
 Latin (LAT)  
 Management and Marketing (MGT)

Explore

**Prerequisite(s):** Junior standing.

MGT 302      MANAGERIAL SKILLS

3

Course focuses on knowledge, skills and abilities in oral and written communication, decision-making, and facilitation of conflict management and group/team management. Demonstrated working competencies are required to complete the course.

**Prerequisite(s):** Junior standing.

MGT 313      NEGOTIATION

3

Course integrates conceptual understanding with practical application of negotiation and examines cultural and gender differences in negotiation, influence of personality traits, the negotiation process, and different ways in which to negotiate. Demonstrated knowledge, skills and abilities are part of course requirements.

**Prerequisite(s):** MGT 301; junior standing.

MGT 314      SURVEY OF HUMAN RESOURCES

3

Survey course designed to familiarize students with the major functional areas in human resources including planning, recruitment and selection, training and development, compensation, benefits, safety, and employee relations. Course develops framework for understanding the roles of HR professional, issues faced by managers and supervisors, and application of sound management theory to these issues.

**Prerequisite(s):** Junior standing.

MGT 318      MANAGEMENT AND SOCIETY

3

Study of business firms' relationship with society through examination of influence of the competitive environment, government, interest groups, and lobbyists in the public policy process. Subjects include technological changes, racism, poverty, diversity, urban issues, and environmental concerns.

**Prerequisite(s):** Junior standing.

MGT 320      NEW VENTURE CREATION

3

Overview of the concepts and aspects involving creation of new business ventures, new product development, and innovation within existing companies now popularly called corporate venturing. Topics include entry strategies, creating high potential opportunities, entrepreneurial finance, business plan development, entrepreneurial marketing, the legal structures of new businesses, and government programs for assisting entrepreneurial firms. Fall sections open to Entrepreneurship majors only with overall 2.7 GPA.

**Prerequisite(s):** (ACC 200 or 208); MGT 201; junior standing.

MGT 321      FINANCING ENTREPRENEURIAL VENTURES

3

Focuses on financial aspects of starting, growing, and harvesting entrepreneurial ventures. Includes assessments of various sources of capital for small and growth businesses with emphasis placed on how common financing deals are structured, common financing pitfalls, and various legal documentation used to consummate financial transactions. Same as FIN 321. Fall sections open to Entrepreneurship majors only with overall 2.7 GPA.

**Prerequisite(s):** ACC 200 or (ACC 207, 208); junior standing.

**Corequisite(s):** FIN 301 or MGT 320.

MGT 401      ORGANIZATIONAL DESIGN, CULTURE, AND CHANGE

3

A course focused at the organizational level of analysis that includes design of organizations, development of organizational culture, and other issues of organizational change. Topics include processes for organizational design and change, power, and information processing.

**Prerequisite(s):** MGT 301; junior standing.

MGT 402      LEADERSHIP AND MOTIVATION

3

An in-depth study of individual and group/team motivation in an organizational setting through examination of individual, organizational, and societal influences on motivation. Focus is on how leaders can understand, and then affect, motivation through a variety of mechanisms.

**Prerequisite(s):** MGT 301; junior standing.

MGT 403 CROSS-CULTURAL MANAGEMENT 3

Study of general cross-cultural differences and development of cross-cultural frameworks in decision-making, negotiation, conflict management, communication, and general business relations. Primary emphasis is on understanding how and why cultures differ and how such differences can be managed.

**Prerequisite(s):** MGT 301; junior standing.

MGT 404 GROUP DYNAMICS, TEAM PROCESSES, AND DECISION MAKING 3

In-depth study of group formation, team design, and diagnosis with emphasis on developing and maintaining different types of groups and teams. Course focuses on leaders' knowledge, skills and abilities to work effectively with teams and groups.

**Prerequisite(s):** MGT 301; junior standing.

MGT 405 EMPLOYEE TRAINING AND DEVELOPMENT 3

Focuses on training and learning methods and models, career paths, and self-improvement methods within the balance of organizational, job, and individual needs. Additional emphasis on systematic development and evaluation of training programs and role of organizational leader in ensuring employee training and development.

**Prerequisite(s):** MGT 301; junior standing.

MGT 409 CURRENT ISSUES IN LEADERSHIP 3

Selected topics that consider and analyze current problems and emerging issues in leadership and in the leader's role in promoting effective organizational change and development.

**Prerequisite(s):** MGT 301; junior standing.

MGT 410 SENIOR SEMINAR IN EXPERIENCING LEADERSHIP 3

Focus on integration of knowledge, skills and abilities acquired in leadership major courses. Seminar combines classroom component with relevant and approved internship or consulting project to integrate the study of leadership with its practice.

**Prerequisite(s):** MGT 401, 402; Leadership major; senior standing.

MGT 414 MULTINATIONAL CORPORATE MANAGEMENT 3

Introduction to use of strategic management in international context with examination of different strategic and tactical approaches organizations use to manage international operations.

**Prerequisite(s):** Senior standing.

MGT 420 ENTREPRENEURIAL MARKETING 3

Study of the techniques used to profitably identify and fill customers' needs when operating with a limited budget during the early stages of a start-up or in a small to medium sized firm. Course strives to develop skills in applying basic marketing principles and high impact sales and promotion techniques in integrated manner to produce a practical, cost-effective action plan for start-ups and smaller companies. Also listed as MKT 420.

**Prerequisite(s):** MKT 300 or 301; junior standing.

MGT 421 SMALL BUSINESS MANAGEMENT 3

Course addresses unique characteristics of small businesses (e.g., resource limitations, family participation) and grapples with ways to overcome the "liability of smallness." Coverage includes effect of macro-trends (e.g., changing technology and globalization) on small business, review of topics from functionally-oriented courses, examination of how functional models such as pricing models can be modified for small business use, and ways for small business to identify and exploit weaknesses of larger, better financed competitors.

**Prerequisite(s):** ACC 200 or 208; MGT 201; junior standing.

MGT 422 BUSINESS PLANS FOR EMERGING FIRMS 3

This course explores multiple business models for launching a new venture. Business models are examined in terms of the type of product/service being offered as well as the goals of the entrepreneur, firm growth, and time to market. The benefits and costs of different types of business plans will be examined relative to the opportunities that students may wish to pursue. Students taking this course must have a potential business opportunity in mind.

**Prerequisite(s):** MGT 320, 321; junior standing; permission of department chairperson.

MGT 423 HUMAN RESOURCE MANAGEMENT IN THE EMERGING FIRM 3

This course explores issues unique to the human resource management (HRM) needs and challenges facing entrepreneurs and their firms. Emphasis is placed on how entrepreneurs can create effective HRM systems in the areas of staffing, recruitment and selection, compensation, motivations, and employee development. Care will be given to address the changes in HRM needs as the firm evolves through several transitional stages.

**Prerequisite(s):** MGT 301; junior standing.

MGT 424 FAMILY BUSINESS MANAGEMENT 3

This course explores topics relevant to entrepreneurs within the family business environment. Specific topics examined will include how family businesses emerge and evolve as well as the unique challenges often found in family business context (e.g., dealing with family conflicts, how to motivate and evaluate employees when a mix of family and non-members are involved, and planning for succession).

**Prerequisite(s):** MGT 320, 321; junior standing.

MGT 427 INTERNSHIP IN ENTREPRENEURSHIP 1 - 3

Exposes students to practicing entrepreneurs currently managing on-going entrepreneurial enterprises. Purpose of course is to develop mentor relationships with successful practicing entrepreneurs, to experience success working in entrepreneurial setting, and to gain first-hand experience about knowledge, skills, and abilities necessary to be a successful entrepreneur. Internships coordinated through the Crotty Center for Entrepreneurial Leadership. Students will submit reports throughout semester addressing questions that integrate Entrepreneurship and other business coursework with their work experience. Typically general elective credit only for ENT majors.

**Prerequisite(s):** MGT 320; Entrepreneurship major; junior standing; permission of Internship Coordinator; overall 2.7 GPA or higher.

MGT 429 CURRENT ISSUES IN ENTREPRENEURSHIP 3

In-depth examination of selected contemporary topics relevant to entrepreneurship. Subject matter may vary each semester. May be taken only once for credit toward Entrepreneurship major or minor.

**Prerequisite(s):** Junior standing.

MGT 430 SENIOR SEMINAR IN ENTREPRENEURSHIP 3

Project-based capstone learning experience for Entrepreneurship major. Course objective is to integrate prior coursework through completion of a consulting project with local entrepreneurial firm, including business plan revision, market research, feasibility testing, financial modeling and analysis, and operations analysis. Course is coordinated through the Crotty Center for Entrepreneurial Leadership.

**Prerequisite(s):** MGT 320, 321; Entrepreneurship major; senior standing; 2.7 overall GPA or higher.

MGT 490 MANAGING THE ENTERPRISE 3

Course focuses on creating understanding of how concepts and analytical tools learned in other business courses are integrated in practice to create a unified whole. Students learn how general and top managers gather and use information to influence organizational mission, goals, and strategies. Course typically relies heavily on cases and/or business simulation.

**Prerequisite(s):** DSC 211; FIN 301; MGT 301; MIS 301; MKT 301; OPS 301; Business major; senior standing.

MGT 491 HONORS THESIS 3

Selection, design, investigation, and completion of an independent and original research thesis under guidance of departmental faculty member.  
**Prerequisite(s):** University Honors Program participant; permission of department chairperson and director of Honors Program; senior standing.

MGT 492 HONORS THESIS

3

Selection, design, investigation, and completion of an independent and original research thesis under guidance of departmental faculty member.  
**Prerequisite(s):** University Honors Program participant; permission of department chairperson and director of Honors Program; senior standing.

MGT 494 SEMINAR IN MANAGEMENT

3

Study of selected topics or issues in contemporary managerial practice, domestic or international. May be taken more than once if topics change. Title will reflect topics covered in a particular offering.  
**Prerequisite(s):** Vary by topic; junior standing.

MGT 497 INTERNSHIP FOR GENERAL ELECTIVE CREDIT

1 - 3

Supervised work experience in partnership with sponsoring employer that is directly relevant to major or minor. Must work with internship coordinator and get approval of department chairperson or designee. May be used for general elective credit only.  
**Prerequisite(s):** Entrepreneurship or Leadership major; junior standing; overall GPA of 2.7 or higher; permission of Internship Coordinator.

MGT 498 COOPERATIVE EDUCATION

1 - 3

Optional full-time work period off campus alternating with study period on campus. (See Chapter X; consult Cooperative Education Office for details.) Permission of chairperson or designee required. May be used for general elective credit only. LDR or ENT majors only.  
**Prerequisite(s):** Overall GPA of 2.7 or higher.

MGT 499 INDEPENDENT STUDY

1 - 3

Supervised study involving directed readings, individual research (library, field, or experimental), or projects in specialized area of management. May be taken only once. May count as general elective credit. Does not apply to requirements for Leadership or Entrepreneurship major or minor.  
**Prerequisite(s):** MGT 301; ENT or LDR major; senior standing; sponsorship by faculty member; permission of department chairperson.

MKT 300 SURVEY OF MARKETING

3

Survey of marketing for non-marketing majors. Course introduces students to market and environmental analysis, marketing strategy and link with corporate strategy, market segmentation, organizational and consumer markets, and marketing mix (product, price, promotion, distribution).  
**Prerequisite(s):** Non-business majors only; sophomore standing.

MKT 301 PRINCIPLES OF MARKETING

3

The general principles and practices underlying the processes of marketing. Analysis of the environmental conditions of manufacturers, wholesalers, retailers, and other marketing agencies.  
**Prerequisite(s):** Business majors only; sophomore standing.

MKT 310 PRINCIPLES OF SELLING

3

The nature of selling, explored through the practical application of buying motives and selling techniques. Projects and role-playing to experience the preparation, closing, and post-purchase phases of selling.  
**Prerequisite(s):** MKT 300 or 301.

MKT 315 RETAIL MARKETING

3

Survey of the development of retailing and the impact of consumer behavior, fashion, computers, and other innovations. Structural organization, location, and layout. Merchandising operations including planning of sales, purchases, stock control, markup, and expense control.  
**Prerequisite(s):** MKT 300 or 301.

MKT 330 SERVICES MARKETING

3

Basic concepts of services marketing including discussion of marketing concepts and their management implications in services organizations, the scope of ethics and social responsibility at the national and global levels, and how the external environment, both domestic and international, influences organization strategy.

**Prerequisite(s):** MKT 300 or 301.

MKT 340      MULTICULTURAL MARKETING ANALYSIS

3

Study of basic concepts and theories of multicultural marketing. Students acquire basic understanding of culture, awareness of cultural differences, and appreciation of importance of cultural adaptation for marketing program, especially as related to development of marketing systems.

**Prerequisite(s):** MKT 300 or 301.

MKT 341      BUSINESS-TO-BUSINESS MARKETING

3

Concepts and analytical procedures associated with marketing to business. Business consumer and competitor analysis, marketing information systems, marketing research, and demand forecasting. Strategy development in product, promotion, distribution, and pricing with focus on manufacturers of business products.

**Prerequisite(s):** MKT 300 or 301.

MKT 350      INTERNET AND ELECTRONIC MARKETING

3

Comprehensive study of the internet as a marketing channel and as an economic and social phenomenon. Emphasis is on role of internet in firm's overall marketing efforts, especially marketing mix, target markets, and external environment; principles of e-commerce; and application of course knowledge in a managerial and decision-making context.

**Prerequisite(s):** MKT 300 or 301.

MKT 405      CONSUMER BEHAVIOR

3

Comprehensive study of buyer decision making which offers insight into the buyer-seller relationship. Application of theories from psychology and social psychology to investigate the behavior of industrial and consumer buyers.

**Prerequisite(s):** MKT 300 or 301.

MKT 406      MARKETING CHANNELS

3

Study of the place element of the marketing mix. A focus on the relationships among manufacturers, wholesalers, and retailers. Channel structure and design including franchising.

**Prerequisite(s):** MKT 300 or 301.

MKT 411      SALES MANAGEMENT

3

The structure of the sales organization; determination of sales policies; selection, training, and motivation of salespersons; establishing sales territories and quotas.

**Prerequisite(s):** (MKT 300 or 301); MKT 310.

MKT 420      ENTREPRENEURIAL MARKETING

3

Study of the techniques used to profitably identify and fill customers' needs when operating within a limited budget during the early stages of a start-up or in a small to medium sized firm. Course strives to develop skills in applying basic marketing principles and high impact sales and promotion techniques in integrated manner to produce a practical, cost-effective action plan for start-ups and smaller companies. Also listed as MGT 420.

**Prerequisite(s):** MKT 300 or 301.

MKT 421      ADVERTISING

3

Nature and scope of advertising, social and economic aspects, role of research, creative strategy, media planning and selection, coordination with other marketing efforts.

**Prerequisite(s):** MKT 300 or 301.

MKT 428      PROMOTION MANAGEMENT

3

Integration course to familiarize marketing students interested in promotion and marketing communication with tools necessary for the development, implementation, and management of promotional programs. Focus on



management and coordination of advertising, personal selling, publicity and public relations, sales promotion, and collateral materials.

**Prerequisite(s):** MKT 300 or 301.

MKT 435 NEW PRODUCT DEVELOPMENT 3

Investigation and analysis of the new product development process, the management of a product through its life cycle, and the importance of the price variable in the product management process.

**Prerequisite(s):** MKT 300 or 301.

MKT 436 MARKETING INTELLIGENCE 3

This course provides an examination of how consumer marketing is evolving in the context of consumer behavior analysis, personalized marketing channels, and computer automation tools. The focus is on analyzing personalized consumer marketing based on consumer behavior.

**Prerequisite(s):** MKT 300 or 301.

MKT 440 GLOBAL MARKETING 3

Emphasis on understanding global marketing environments, developing skills of global market analysis, designing and developing appropriate marketing strategies for global markets, decision making in global marketing.

**Prerequisite(s):** MKT 300 or 301.

MKT 445 SPECIAL TOPICS IN INTERNATIONAL MARKETING 3

Study abroad program. Subject varies from time to time. May be taken more than once if topic changes

**Prerequisite(s):** Junior standing.

MKT 450 BUYER BEHAVIOR AND MARKET ANALYSIS 6

Integration of theoretical components of buyer behavior and marketing research. Emphasis placed on how marketing managers use concepts from these bodies of knowledge to make better decisions. Topics include common processes and methods of contemporary market research, analysis of purchase decisions, market research techniques used to gather information about purchase decisions, and use of information to formulate and implement a marketing strategy.

**Prerequisite(s):** MKT 301; Marketing major; junior standing.

MKT 455 MARKETING PLANNING AND STRATEGY 3

Integrative course in marketing with emphasis on managerial decision making. The course is designed around a strategic marketing planning approach with a clear emphasis on how to do strategic analysis and marketing planning.

**Prerequisite(s):** ACC 207, 208; MKT 450; Marketing major.

MKT 491 HONORS THESIS 3

Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

MKT 492 HONORS THESIS 3

Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

MKT 494 SPECIAL TOPICS IN MARKETING 3

Subject varies from time to time. May be taken more than once if topic changes.

**Prerequisite(s):** Vary by topic.

MKT 497 INTERNSHIP FOR GENERAL ELECTIVE CREDIT 1 - 3

Practical work experience associated with career development and career exploration. See internship coordinator for details. Permission of department chair or designee required.

**Prerequisite(s):** MKT major; junior standing; overall gpa of 2.7 or higher;



permission of internship coordinator.

MKT 498 COOPERATIVE EDUCATION

1 - 3

Optional full-time work period off campus alternating with study period on campus. (See Chapter X; consult Cooperative Education Office for details.) Permission of chairperson or designee required. For general elective credit only.

**Prerequisite(s):** MKT major; overall gpa of 2.7 or higher.

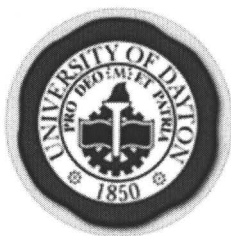
MKT 499 INDEPENDENT STUDY IN MARKETING

1 - 3

Study of one or more specific aspects of the marketing process with emphasis on individual reading and research. Subject matter to be determined by the instructor on the basis of interest and need of the student. Enrollment limited. Permission of chairperson or designee required.

**Prerequisite(s):** MKT 301; MKT major; senior standing; permission of department chairperson.





**School of Business Administration**

**Management Information Systems, Operations Management and Decision Sciences (Collapse Description)**

The Department of Management Information Systems, Operations Management, and Decision Sciences offers courses in several quantitative and systems areas, a major and a minor in management information systems, a major and minor in operations management, and minors in decision sciences and e-business.

## Faculty

Charles Wells, Chairperson  
Professor Emeritus and Distinguished Service Professor: Bohlen  
Professors Emeriti: Amsden, Casey, Hoffer, Vlahos  
Sherman-Standard Register Professor of MIS: Thomas Ferratt  
Niehaus Chair in Operations Management: John Kanet  
Professors: Dunne, Ferratt, Kanet, Wells  
Associate Professors: Enns, Gorman, Prasad, Salisbury  
Assistant Professors: Harrod, Jacobs, Wynn  
Lecturers: Davis, Hall, Wagner

Sub-Categories / Concentrations / Focus Areas

Decision Sciences

Management Information Systems

## Operations Management

### Courses (Collapse All Courses)

Code	Title	Sem.	Hrs.
DSC 210	STATISTICS FOR BUSINESS I		3
Basic concepts of statistics including descriptive statistics, probability, probability distributions, and estimation.			
<b>Prerequisite(s):</b> MTH 128, 129; BAI 103L (may be taken as a corequisite).			
DSC 211	STATISTICS FOR BUSINESS II		3
Tests of hypotheses, analysis of variance, Chi-square tests, simple and multiple regression and correlation, and nonparametric methods. Use of computer software for statistical data analysis.			
<b>Prerequisite(s):</b> DSC 210; MTH 129.			
DSC 313	ADVANCED BUSINESS STATISTICS		3
Selected topics from advanced statistics with emphasis on business applications.			
<b>Prerequisite(s):</b> DSC 211 or equivalent.			
DSC 375	MANAGEMENT SCIENCE		3
Quantitative modeling applications for managerial analysis and decision making. Develops skills to analyze and solve problems using computer-based mathematical modeling in a wide variety of business decision situations involving business functional areas such as accounting, economics, finance, human resources, marketing, management information systems, and operations management. Topics include constrained modeling techniques, simulation, and multi-criteria decision making.			
<b>Prerequisite(s):</b> DSC 211; OPS 301 (may be taken as a corequisite).			
DSC 410	DECISION THEORY		3

## the Bulletin

AUGUST 2009 - UNDERGRADUATE ISSUE

Explore a Different Issue

Search Academic Information General Information

**Explore by Department / Program:**

International Studies  
Languages  
Management and Marketing  
Management Information Systems, Operatio...

## Explore

**Explore by Major / Minor:**

Accounting (ACC)  
Adolescence to Young Adult Education... (EYA)  
Aerospace Engineering (AAE)  
Aerospace Engineering Concentration (AEC)

## Explore

### Explore by Courses:

Accounting (ACC)  
Air Force Aerospace Studies, ROTC (AES)  
American Studies (AMS)  
Anthropology (ANT)

## Explore

Introduction to the analysis of decisions under uncertainty. Topics include structuring of the decision process, Bayesian decision theory, and multicriteria decision making.

**Prerequisite(s):** DSC 211 or equivalent.

DSC 415 SIMULATION MODELING AND ANALYSIS 3

Introduction to simulation models in support of business decision making. Emphasis on building and analyzing models in a variety of applications, including manufacturing and service systems. Study and use of a simulation language.

**Prerequisite(s):** DSC 211; DSC 375 recommended.

DSC 435 ANALYSIS OF FACTORY SYSTEMS 3

Concepts and techniques for the analysis, design, and management of factory production systems. Work-flow layout, scheduling techniques, stochastic process models, simulations, and computerized factory models

**Prerequisite(s):** DSC 375, OPS 301.

DSC 491 HONORS THESIS 3

Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member.

Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

DSC 492 HONORS THESIS 3

Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member.

Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

DSC 494 SEMINAR IN DECISION SCIENCES 3

Study of selected topics or issues in applied statistics, quantitative business analysis, and production and operations management. Topics vary from time to time. May be taken more than once if topics change. Title will reflect topics covered in a particular offering.

DSC 497 LABORATORY WORK EXPERIENCE 1 - 6

Under faculty sponsorship and in association with a participating industrial, commercial, educational, health-care, or governmental organization, practical experience in work associated with the student's minor concentration. (See internship coordinator for details.) Does not satisfy MIS elective. Permission of chairperson required.

**Prerequisite(s):** Permission of department chairperson.

DSC 499 INDEPENDENT STUDY IN DECISION SCIENCES 1 - 6

Research in conjunction with a faculty member on a subject within the general area of decision sciences. Normally open only to juniors and seniors who have attained a cumulative grade-point average of 3.0 or above. Permission of chairperson required.

**Prerequisite(s):** Permission of department chairperson.

MIS 300 SURVEY OF MANAGEMENT INFORMATION SYSTEMS 3

Introduction to management information systems concepts, terminology, purposes, and applications for the nonbusiness student. Not open to students in the School of Business Administration or to those with credit in MIS 301. Permission of department chairperson required.

**Prerequisite(s):** (BAI 103L or HSS 226); junior standing.

MIS 301 INFORMATION SYSTEMS IN ORGANIZATIONS 3

Survey of theory and applications of computer-based information systems in organizations. The role of information in organizational processes, current information technology, decision support systems, and end-user computing and distributed processing systems. Sophomores are encouraged to take this course during their second term.

**Prerequisite(s):** ACC 207;( ACC 208 or 301, (may be taken as a corequisite)); (BAI 103L or HSS 226); ECO 203.

MIS 305	INTRODUCTION TO BUSINESS APPLICATIONS: PROBLEM SOLVING WITH VISUAL TOOLS	1
Introduction to basic programming structures and graphical user interface design using a visual programming language such as Visual Basic.net. <b>Prerequisite(s):</b> BAI 103L or equivalent.		
MIS 325	PROGRAMMING FOR BUSINESS SYSTEMS	4
(Formerly MIS 225) Process of software development for business system implementation. Fundamental object-oriented programming concepts including program design, documentation, development, and testing of computer solutions of business problems using a modern programming language, such as Java. <b>Prerequisite(s):</b> MIS 305.		
MIS 360	E-COMMERCE PROCESSES AND TECHNOLOGY	3
Introduction to information systems technologies and techniques that enable business-to-business and business-to-consumer electronic relationships. Development of interactive websites with an introduction to client- and server-side scripting and simple database access. <b>Prerequisite(s):</b> (MIS 300 or 301); (MIS 305 or equivalent); (BAI 103L or equivalent HTML knowledge).		
MIS 366	BUSINESS INTELLIGENCE	3
The use of computer-based data analysis tools to support managers in problem solving and decision making. <b>Prerequisite(s):</b> DSC 211; MIS 301. <b>Corequisite(s):</b> MIS 385.		
MIS 368	PRINCIPLES OF INFORMATION SECURITY MANAGEMENT	3
A multidisciplinary overview of information security. This includes security policy, assets, HR, physical and logical information resource security, business continuity, and compliance. Introduction to the body of knowledge, issues relevant to creating a systematic information assurance and compliance control structure, systematic security auditing and control procedures, and how to build systematic information assurance capability into the IT function. Discussion of IS testing design is included. <b>Prerequisite(s):</b> MIS 301.		
MIS 380	SYSTEMS ANALYSIS AND RE-ENGINEERING	3
Concepts, methods, techniques, and tools needed to initiate a systems development project and to conduct the requirements collection, analysis, and structuring activities of systems development. Structured life cycle and alternatives. Re-engineering business processes through information systems. <b>Prerequisite(s):</b> MIS (300 or 301), 305; MIS 385 (may be taken as a corequisite). <b>Corequisite(s):</b> MIS 381.		
MIS 381	PRINCIPLES OF PROJECT MANAGEMENT	1
Introduction to project management concepts and ideas. Possible use of an existing team project from another course to learn principles of scheduling, team management, client management, etc., emphasizing best project management practices. <b>Prerequisite(s):</b> MIS 300 or 301.		
MIS 385	SYSTEMS IMPLEMENTATION WITH DATABASE MANAGEMENT SYSTEMS	3
Concepts, techniques, and tools to convert a logical system design into a working application using a relational DBMS. File and data structures, logical and physical database design, security and data integrity, file design and processing. DBMS functions, SQL, 3GL and 4GL access to databases, linkage to WWW pages, database architectures, CASE. <b>Prerequisite(s):</b> MIS 300 or 301; MIS 305 (may be taken as a corequisite).		
MIS 410	OBJECT-ORIENTED ANALYSIS AND DESIGN	3
Introduction to object-oriented concepts and techniques for analyzing and designing systems. Systems development project using an object-oriented CASE tool.		

**Prerequisite(s):** MIS 301 or permission of instructor; MIS 305 recommended.

MIS 420	EXPERT AND KNOWLEDGE-BASED SYSTEMS	3
Introduction to artificial intelligence and expert and knowledge-based systems; knowledge acquisition, implementation, and validation; advanced topics; applications to business. Use of expert system software. <b>Prerequisite(s):</b> BAI 103L or equivalent; DSC 375 recommended.		
MIS 425	INFORMATION FOR TOTAL QUALITY	3
Theory and practice of total quality management (TQM); applications of TQM in the information systems function, information system requirements for TQM programs. <b>Prerequisite(s):</b> MIS 301; OPS 301.		
MIS 430	TELECOMMUNICATIONS AND NETWORKING	3
Introduction to computer-based communication networks; underlying concepts; basic hardware components and operating systems; network architectures and protocols; data integrity and security; message routing; network management. <b>Prerequisite(s):</b> MIS 380.		
MIS 460	ADVANCED WEB DEVELOPMENT	3
Study of web development concepts and techniques. Design and development of dynamic web-sites using tools such as ASP. <b>Prerequisite(s):</b> (MIS 300 or 301); (MIS 305 or equivalent).		
MIS 461	E-BUSINESS	3
Models of how to conduct business electronically. Topics include different forms of e-business, products and services provided on the Internet, how to combine electronic business with brick-and-mortar business, and keys to success for electronically enhanced businesses. <b>Prerequisite(s):</b> MIS 301.		
MIS 465	MIS PROJECT I-ANALYSIS AND DESIGN IN TEAMS	3
First of a two-course sequence. Team participation/management and project management skills. Apply these skills in teams to perform an analysis and preliminary re-design of an existing organization's information system. Emphasis on written and oral communications, including team-prepared reports and presentations. Offered fall semester only. <b>Prerequisite(s):</b> MIS 325, 380, 381, 385.		
MIS 467	DATA WAREHOUSING	3
Purpose, design, implementation, and effective use of data warehouses and data warehousing technologies. Topics include data warehouse design, data marts, data quality management, extract-transform-load process, and business intelligence. <b>Prerequisite(s):</b> MIS 301, 385.		
MIS 468	INTERNET SECURITY	3
This course provides students with an understanding of both defensive and offensive issues of information security. The course includes instruction on information security theory, psychological operations, hacking, viruses, and systems management. The course also places emphasis on security for e-commerce and the Internet. <b>Prerequisite(s):</b> MIS 301.		
MIS 475	MIS PROJECT II - DESIGN AND IMPLEMENTATION IN TEAMS	3
Continuation of MIS 465. With its organizational client, each team carries its project as far as possible towards final design and actual implementation. Emphasis on written and oral communications, including team-prepared reports and presentations. Offered winter semester only. <b>Prerequisite(s):</b> MIS 465.		
MIS 491	HONORS THESIS	3

Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

MIS 492 HONORS THESIS

3

Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

MIS 494 SEMINAR IN MANAGEMENT INFORMATION SYSTEMS

1 - 4

Study of selected technical and/or organizational issues in information systems. Topics vary from time to time. May be taken more than once if topics change. Title will reflect topics covered in a particular offering.

MIS 497 LABORATORY WORK EXPERIENCE

1 - 6

Under faculty sponsorship and in association with a participating industrial, commercial, educational, health-care, or governmental organization; practical experience in work associated with the student's major concentration. (See internship coordinator for details.)

**Prerequisite(s):** Permission of department chairperson.

MIS 498 COOPERATIVE EDUCATION

1 - 6

Optional full-time work period off campus alternating with study period on campus. (See Chapter X; consult Cooperative Education Office for details.)

**Prerequisite(s):** Permission of department chairperson.

MIS 499 INDEPENDENT STUDY

1 - 6

Research in conjunction with a faculty member on a subject within the general area of management information systems. Open only to juniors or seniors who have attained a cumulative grade point average of 3.0 or above.

**Prerequisite(s):** Permission of department chairperson.

OPS 220 OPERATIONS EXPERIENCES

1

Designed to immerse students into the contemporary issues of operations management. Site visits and guest lectures from operations management leaders. Priority given to first and second year students. Satisfactory/No Credit.

**Prerequisite(s):** Permission of department chairperson.

OPS 300 INTRODUCTION TO OPERATIONS MANAGEMENT

3

Concepts and OM software-based techniques of designing, implementing, managing, and improving operations in manufacturing and service organizations, including project management, services systems design, resource allocation modeling, facility location, layout, aggregate planning, scheduling, and material requirements planning. Survey of major OM strategies such as: just-in-time production, total quality management, business process reengineering, synchronous manufacturing, enterprise resource planning, and supply chain management. Not open to students in the School of Business Administration or to those with credit in OPS 301. Student must show aptitude in quantitative materials.

**Prerequisite(s):** (BAI 103L or equivalent); (MTH 128, 129 or equivalent); junior standing; permission of department chairperson; DSC 211 or equivalent recommended.

OPS 301 SURVEY OF OPERATIONS MANAGEMENT

3

Concepts and OM software-based techniques of designing, implementing, managing, and improving operations in manufacturing and service organizations, including project management, service systems design, resource allocation modeling, facility location, layout, aggregate planning, scheduling, and material requirements planning. Survey of major OM strategies such as: just-in-time production, total quality management, business process reengineering, synchronous manufacturing, enterprise resource planning, and supply chain management.

**Prerequisite(s):** DSC 211 (may be taken as a corequisite).

OPS 350 BUSINESS PROCESS MANAGEMENT

3

Concepts of business process management and improvement in manufacturing/service firms. Simulation analysis of business processes through mapping and improvement evaluation using software packages such as ProcessModel. Other tools of business process analysis (operations charts, time-function mapping, work-flow analysis, etc.).

Behavioral/managerial issues of business process improvement (benchmarking, incremental versus radical change, and management of change).

**Prerequisite(s):** DSC 211; OPS 301 (may be taken as a corequisite).

OPS 401 OPERATIONS PLANNING AND CONTROL 3

Concepts and techniques of operations design, on-going management and improvement. Advanced treatment topics: including total quality management, just-in-time, operations scheduling, synchronous manufacturing, and enterprise resource planning (ERP). Software-based analysis of ERP operations. Linkages between technical and managerial/organizational issues in planning and controlling operations in manufacturing and service organizations.

**Prerequisite(s):** DSC 211; DSC 375 (may be taken as a corequisite); OPS 301.

OPS 413 PROJECT MANAGEMENT 3

A broad coverage of technical and human management issues in projects. Emphasis on project planning, scheduling, tracking, and close-down. Task time and cost estimation and description. Use of computer software. Team building and other aspects of managing project teams.

**Prerequisite(s):** OPS 301.

OPS 430 QUALITY AND JUST IN TIME MANUFACTURING 3

The concepts of just-in-time manufacturing, total quality system, and statistical process control. Projects, tours, and guest speakers.

**Prerequisite(s):** OPS 301.

OPS 440 CONTINUOUS IMPROVEMENT 3

Theory and practice of continuous improvement especially as applied in manufacturing; comparison to the traditional operations management approach, tools and techniques, the KAIZEN approach.

**Prerequisite(s):** OPS 301.

OPS 480 SUPPLY CHAIN MANAGEMENT STRATEGIES 3

Concepts, analytical techniques, and solution methods for designing and managing integrated supply chains. Strategic issues of integrated supply chain design and management, including inventory management, logistics network design, distribution systems, strategic alliances, value of information for centralized decisions and risk-pooling, information technology and decision support, and international supply chain management.

**Prerequisite(s):** DSC 211; DSC 375 (may be taken as a corequisite); OPS 301; OPS 350 (may be taken as a corequisite).

OPS 485 CAPSTONE OPS PROJECT PART 1 1

This course centers on the preparation for an experiential operations improvement project. Students evaluate real-world project proposals from clients, develop clear understanding of operations improvement opportunities, and select projects at hand. Student teams learn about process improvement project design and develop well-defined project plans for execution in OPS 495. Students taking OPS 485 in the fall must take OPS 495 in the subsequent winter semester.

**Prerequisite(s):** Permission of instructor.

OPS 491 HONORS THESIS 3

Selection, design, investigation, and completion of an independent and original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

OPS 492 HONORS THESIS 3

Selection, design, investigation, and completion of an independent original, research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

OPS 494 SEMINAR IN OPERATIONS MANAGEMENT

3

Study of selected topics or issues in operations management. Topics vary from time to time. May be taken more than once if topics change. Title will reflect topics covered in a particular offering.

OPS 495 CAPSTONE OPS PROJECT PART 2

5

This course centers on the execution of an experiential project applying operations management concepts and techniques to practical problems with faculty supervision. Student teams address significant operational problems and opportunities in real-world service and manufacturing firms. Teams write recommendation/implementation reports and make presentations of their work.

**Prerequisite(s):** OPS 401, 480, 485.

OPS 497 LABORATORY WORK EXPERIENCE

1 - 6

Under faculty sponsorship and in association with a participating industrial, commercial, educational, health-care, government, or other organization, practical experience in work associated with the student's major. (See internship coordinator for details.) May satisfy OPS elective, with chairperson approval.

OPS 498 COOPERATIVE EDUCATION

1 - 6

Optional full-time work period off campus alternating with study period on campus. (See Chapter X; consult Cooperative Education Office for details). Permission of chairperson required.

OPS 499 INDEPENDENT STUDY IN OPERATIONS MANAGEMENT

1 - 6

Research in conjunction with a faculty member on a subject within the general area of operations management. Normally open only to juniors and seniors who have attained a cumulative grade-point average of 3.0 or above. Permission of chairperson required.







## College of Arts and Sciences

### (MTH) Mathematics (Collapse Description)

The B.A. program in mathematics provides for a breadth of mathematical study within the context of a liberal arts degree. It may be chosen as a preparation for a professional career in business, education, law or social science. It affords the student a significant distribution of courses in the humanities and social sciences so that he or she can develop a concentration in a field other than mathematics. The student's career goals will generally suggest desirable upper level mathematics electives. For example, prospective secondary mathematics teachers should participate in the licensure program and elect courses such as MTH 370, 395, and 466. Students with an interest in business, law, or social science should complete the probability and statistics sequence MTH 411-412.

The B.S. program in mathematics provides a foundation for students who wish to pursue graduate studies in any area of the mathematical sciences, to enter the actuarial profession, or to enter careers where mathematics is used in an engineering or science setting. A preparation for graduate programs in a mathematical science should include electives such as MTH 342, 404 and 471. A preparation for the actuarial examinations would include the probability and statistics sequence MTH 411-412; in addition, actuarial preparation should include a year of accounting, a year of economics, and a course in numerical methods CPS 353. To prepare for using mathematics in an applied context, some useful elective courses are MTH 403, 404, and the MTH 411-412 sequence.

The basic courses MTH 168, 169, 218, 219, 308, and 310 are offered every term. Most majors will take MTH 218 and MTH 308 in the same term. The required core courses, MTH 330, 361, 411, and 430, are offered at least once a year. However, most of the other upper-level electives for the major are offered only once every two years; thus careful planning for a student's upper-level electives should be done in consultation with the advisor. In addition, the symbolic logic course, PHL 302, is a recommended general education course for all mathematics majors.

The B.S. program in applied mathematical economics provides a foundation in economics, mathematics and statistics needed for graduate study in economics or applied statistics, or for research and technical careers in business or government service. This degree is offered jointly by the Department of Mathematics and the Department of Economics and Finance in the School of Business Administration.

A minor in mathematics consists of twelve semester hours (300-400 level).

### Faculty

Joe D. Mashburn, Chairperson  
Distinguished Service Professor: Peterson  
Professors Emeriti: Back, Friel, Gantner, Kauflin, McCloskey, Mushenheim, Rice, Schleppi, R. Steinlage, Strange  
Professors: Eløe, Higgins, Islam, Mashburn  
Associate Professors: Abueida, Diestelkamp, Driskell, Gorton, Hovey, Krakowski, Raffoul, Shaughnessy  
Assistant Professors: Busch, Keen, Liu, Qumsiyeh, Usman, Yengulalp  
Lecturers: Ober, Saintignon, L. Steinlage

### Majors/Minors (Collapse All)

Major/Minor Name

Bachelor of Arts with a major in Mathematics (MTA)

#### Mathematics

MTH 168, 169, 218, 308, 310, 330, 361, 411  
MTH electives (300- and 400-level)

Sem. Hrs.

36  
27  
9

## the Bulletin

AUGUST 2009 - UNDERGRADUATE ISSUE

→ Explore a Different Issue

Search Academic Information General Information

### Explore by Department / Program:

Languages  
Management and Marketing  
Management Information Systems, Operatio...  
Mathematics

Explore

### Explore by Major / Minor:

Marketing (MKT)  
Materials Engineering (MAT)  
Mathematics (MTA)  
Mathematics (MTH)

Explore

### Explore by Courses:

Management Information Systems (MIS)  
Marianist Studies (MST)  
Marketing (MKT)  
Mathematics (MTH)

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## Liberal Studies Curriculum

Humanities and Fine Arts	
Philosophy and Religious Studies	12
History	6
Literature: English or Foreign Language	3
Creative and Performing Arts	3
Foreign Language and/or Additional Arts and/or Humanities	3-9
Social Sciences	12
Natural Sciences	11
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>124</b>

## Bachelor of Science with a major in Applied Mathematical Economics (MTE)

	Sem. Hrs.
<b>Economics</b>	<b>18</b>
ECO 203, 204, 346, 347, 441	15
Economics elective (300- or 400-level)	3
<b>Mathematics</b>	<b>27</b>
MTH 168, 169, 218, 308, 310, 330, 411, 412	27
Breadth Requirement	35
Natural Sciences (select one grouping of courses from the following):	8
BIO 151-151L, 152-152L	
CHM 123-123L, 124-124L	
GEO 115-115L, 116-116L	
PHY 206, 207, 210L, 211L	
Computer Science	7
CPS 150	4
CPS elective (300- or 400-level)	3
Social and Behavioral Sciences	6
Humanities	9
Philosophy and Religious Studies	12
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>120</b>

## Bachelor of Science with a major in Mathematics (MTH)

	Sem. Hrs.
<b>Mathematics</b>	<b>42</b>
MTH 168, 169, 218, 219, 308, 310, 330, 361, 430	30
MTH electives (300- and 400-level) <sup>1</sup>	12
Breadth Requirement	
Natural Sciences (select one grouping of courses from the following):	14
BIO 151-151L, 152-152L	
CHM 123-123L, 124-124L	
GEO 115-115L, 116-116L	
PHY 206, 207, 210L, 211L	
Two additional courses acceptable for Science majors	

Computer Science	3-4
CPS (132 or 150)	
Social and Behavioral Sciences	6
Humanities	9
Philosophy and Religious Studies	12
Communication Competencies	0-9
Introduction to the University: ASI 150	0-1
<b>General Education courses/academic electives to total at least</b>	<b>120</b>

<sup>1</sup>Departmental approval required.

Minor in Mathematics (MTH)

	Sem. Hrs.
<b>Mathematics</b>	<b>12</b>
Select twelve semester hours (300- or 400-level)	12

### Courses (Collapse All Courses)

Code	Title	Sem. Hrs.
MTH 102	FUNDAMENTALS OF MATHEMATICS	3
Sets, functions and graphs, exponents, polynomials and algebraic equations, systems of equations.		
<b>Prerequisite(s):</b> One year of high school algebra.		
MTH 114	CONTEMPORARY MATHEMATICS	3
A study of contemporary mathematical topics and their applications. Topics may include management science, statistics, social choice, size and shape, and computer mathematics.		
<b>Prerequisite(s):</b> Two years of high school algebra.		
MTH 116	PRECALCULUS MATHEMATICS	4
A review of topics from algebra and trigonometry including polynomials, functions and graphs, exponential and logarithmic functions, trigonometric functions and identities.		
MTH 128	FINITE MATHEMATICS	3
Topics from mathematics used in business including systems of equations, inequalities, matrix algebra, linear programming and logarithms; applications to compound interest, annuities and other finance problems.		
<b>Prerequisite(s):</b> MTH 102 or sufficient college preparatory mathematics.		
MTH 129	CALCULUS FOR BUSINESS	3
Topics from differential and integral calculus used in business; applications to optimizing financial functions, marginal functions in economics, and consumer or producer surplus.		
<b>Prerequisite(s):</b> MTH 128 or sufficient college preparatory mathematics.		
MTH 137	CALCULUS I WITH REVIEW	4
Introduction to the differential and integral calculus with an extensive review of algebra and trigonometry; differentiation and integration of algebraic and transcendental functions with applications.		
<b>Prerequisite(s):</b> Two years of high school algebra.		
MTH 138	CALCULUS I WITH REVIEW	4
Introduction to the differential and integral calculus with an extensive review of algebra and trigonometry; differentiation and integration of algebraic and transcendental functions with applications.		
<b>Prerequisite(s):</b> MTH 137.		
MTH 148	INTRODUCTORY CALCULUS I	3

Introduction to the differential and integral calculus; differentiation and integration of algebraic and transcendental functions with applications to the life and social sciences.

**Prerequisite(s):** MTH 116 or equivalent.

MTH 149      INTRODUCTORY CALCULUS II

3

Continuation of MTH 148. Multivariable calculus, matrices, difference equations, probability, discrete and continuous random variables, and differential equations with applications to the life and social sciences.

**Prerequisite(s):** MTH 138 or 148.

MTH 168      ANALYTIC GEOMETRY AND CALCULUS I

4

Introduction to the differential and integral calculus; differentiation and integration of algebraic and transcendental functions with applications to science and engineering.

**Prerequisite(s):** MTH 116 or equivalent.

MTH 169      ANALYTIC GEOMETRY AND CALCULUS II

4

Continuation of MTH 168. Conic sections, techniques of integration with applications to science and engineering, infinite series, indeterminate forms, Taylor's theorem.

**Prerequisite(s):** MTH 138 or 168.

MTH 204      MATHEMATICAL CONCEPTS I

3

First course of a two-semester sequence designed for pre-service teachers. Concepts necessary for an understanding of the structure of arithmetic and its algorithms, number patterns, sets, problem solving, percent, relation and proportion, use of calculators.

**Prerequisite(s):** One year of high school algebra; one year of high school geometry.

MTH 205      MATHEMATICAL CONCEPTS II

3

Continuation of MTH 204. Topics include probability, representing and interpreting data, the metric system, elementary geometry, geometric patterns, coordinate geometry, algebra and geometry, transformations, computer literacy.

**Prerequisite(s):** MTH 204.

MTH 206      ALGEBRA AND CALCULUS CONCEPTS

3

Development of the algebra of polynomials and functions; factoring and roots; mathematical induction and the binomial theorem; arithmetic and geometric sums; introduction to limiting processes; slopes and area estimations and computations.

**Prerequisite(s):** MTH 205.

MTH 207      INTRODUCTION TO STATISTICS

3

Introduction to the concepts of statistical thinking for students whose majors do not require calculus. Methods of presenting data, including graphical methods. Using data to make decisions and draw conclusions. Basic ideas of drawing a sample and interpreting the information that it contains.

**Prerequisite(s):** Two years of high school algebra.

MTH 214      MATHEMATICAL CONCEPTS FOR MIDDLE SCHOOL TEACHERS

3

Concepts necessary for an understanding of the arithmetic taught in both elementary and middle grades. Includes a study of the structure of arithmetic and its algorithms; problem solving; reasoning and proof; proportional reasoning; use of computers and calculators to solve problems.

MTH 215      ALGEBRA, FUNCTIONS AND GRAPHS

3

Development of the algebra of various families of functions including polynomial, exponential, logarithmic, and trigonometric functions; factoring and roots; interpretation of graphs; use of calculators and data collection devices to solve problems.

**Prerequisite(s):** MTH 214.

MTH 216      CALCULUS CONCEPTS AND APPLICATIONS

3

Develop conceptual understanding of basic calculus concepts; introduction to the notion of limit; rates of change; slopes and area computations; use of calculators and data collection devices to make predictions, estimations, and solve problems.

**Prerequisite(s):** MTH 215 or permission of instructor.

MTH 218 ANALYTIC GEOMETRY AND CALCULUS III 4

Continuation of MTH 169. Solid analytic geometry, vectors and vector functions, multivariable calculus, partial derivatives, multiple integrals.

**Prerequisite(s):** MTH 169.

MTH 219 APPLIED DIFFERENTIAL EQUATIONS 3

First order equations, linear equations with constant coefficients, systems of equations, the Laplace transform, numerical methods, applications.

**Prerequisite(s):** MTH 218.

MTH 250 ADVANCED TECHNICAL MATHEMATICS 3

Appropriate analytical techniques for students of engineering technology; topics include integration by parts, multivariable calculus, complex numbers, matrices and system of linear equations, and first and second order differential equations. Applications are appropriate for the engineering technology programs (circuits, vibrations, and heat transfer).

**Prerequisite(s):** MTH 138 or 168.

MTH 266 DISCRETE AND FINITE MATHEMATICS FOR MIDDLE SCHOOL TEACHERS 3

Introduction to topics in finite and discrete mathematics; linear programming; applications in finance; graph theory; mathematics of social choice; logic; use of computers and calculators to model and solve problems.

**Prerequisite(s):** MTH 214 or permission of instructor.

MTH 270 GEOMETRY CONCEPTS AND APPLICATIONS 3

Introduction to the geometry of two- and three-dimensional space; patterns in geometry; measurement systems; transformations and similarity; coordinate geometry; the algebra of geometry; trigonometry; use of dynamic computer software to explore geometric concepts.

**Prerequisite(s):** MTH 214.

MTH 290 TOPICS IN (NAMED AREA) 1 - 3

Exploration of varying topics appropriate for the needs of the pre-service training of teachers of mathematics. May be repeated as topics change.

**Prerequisite(s):** One mathematics course beyond MTH 102; permission of department chairperson and/or instructor.

MTH 295 HISTORICAL ROOTS OF ELEMENTARY MATHEMATICS 3

Fundamental historical development of modern arithmetic, algebra, geometry, and number systems from early Egyptian, Babylonian, and Greek sources. Students may not receive credit for both this course and MTH 395.

**Prerequisite(s):** MTH 214 or permission of instructor.

MTH 308 FOUNDATIONS AND DISCRETE MATHEMATICS 3

An introduction to proof using topics in foundational and discrete mathematics; propositional logic; number theory; sequences and recursion; set theory; relations; combinatorics; linear programming.

**Prerequisite(s):** MTH 169.

MTH 310 LINEAR ALGEBRA AND MATRICES 3

Fundamental concepts of vector spaces, determinants, linear transformations, matrices, inner product spaces, and eigen-vectors. Offered each term.

**Prerequisite(s):** (MTH 218, 308) or (MTH 218; permission of instructor). (May be taken as corequisites).

MTH 330 INTERMEDIATE ANALYSIS 3

Theoretical development of the calculus of a real-valued function of a real variable. Topics include the algebraic and topological properties of the real line, limits of sequences and functions, continuity, differentiability, and integration.

**Prerequisite(s):** MTH 310.

## MTH 342 SET THEORY 3

Elementary set theory including relations, functions, indexed families, denumerable and nondenumerable sets, cardinal and ordinal arithmetic, Zorn's Lemma, the well-ordering principle and transfinite induction.

**Prerequisite(s):** MTH 218, 308.

## MTH 343 MATHEMATICS FOR ELECTRICAL AND COMPUTER ENGINEERS 3

Linear algebra and matrices, complex variables, mathematical transforms and their inter-relations. Focus on mathematical theories as well as applications and an extensive use of MATLAB.

**Prerequisite(s):** MTH 219.

## MTH 361 INTRODUCTION TO ABSTRACT ALGEBRA 3

Fundamental concepts of groups, rings, integral domains and fields.

**Prerequisite(s):** MTH 218, 308.

## MTH 367 STATISTICAL METHODS I 3

Probability distributions including binomial, hypergeometric, Poisson, and normal. Estimation of population mean and standard deviation: Confidence intervals and tests of hypotheses using t-, Chi-square, and F-statistics. Mathematics majors enroll in MTH 411 instead of 367.

**Prerequisite(s):** MTH 149 or 169.

## MTH 368 STATISTICAL METHODS II 3

Distribution-free methods including rank tests, sign tests, and Kolmogorov-Smirnov test. Method of least squares, correlation, linear regression, analysis of variance. Design of experiments and computer applications. Mathematics majors enroll in MTH 412 instead of 368.

**Prerequisite(s):** MTH 367.

## MTH 370 INTRODUCTION TO HIGHER GEOMETRY 3

Projective, affine, and hyperbolic geometries using synthetic and/or analytic techniques.

**Prerequisite(s):** MTH 218, 308.

## MTH 376 NUMBER THEORY 3

Topics include Diophantine equations, Chinese Remainder theorem, Mobius inversion formula, quadratic residues and the Law of Quadratic Reciprocity, Gaussian integers, and integral quaternions.

**Prerequisite(s):** MTH 218, 308.

## MTH 395 DEVELOPMENT OF MATHEMATICAL IDEAS 3

The evolution of mathematical ideas and techniques from ancient times to the present with emphasis on the Greek era. Famous people and famous problems. Chronological outline of mathematics in each of its branches along with applications.

**Prerequisite(s):** MTH 218, 308.

## MTH 403 BOUNDARY VALUE PROBLEMS 3

Introduction to the Sturm-Liouville problem. Fourier trigonometric series, Fourier integrals, Bessel functions, and Legendre polynomials. The heat equation, wave equation, and Laplace's equation with applications. Solutions by the product method.

**Prerequisite(s):** MTH 219.

## MTH 404 COMPLEX VARIABLES 3

Functions of a complex variable, conformal mapping, integration in the complex plane. Laurent series and residue theory.

**Prerequisite(s):** MTH 219.

## MTH 411 PROBABILITY AND STATISTICS I 3

Mathematical probability, random variables, Bayes' Theorem, Chebyshev's Inequality, Binomial, Poisson, and Normal probability laws, moment generating functions, limit theorems, descriptive statistics, large sample statistical inference.

**Prerequisite(s):** MTH 218, 308.

MTH 412 PROBABILITY AND STATISTICS II 3

Multivariate distributions, transformations of random variables, sampling distribution theory, estimation of parameters including maximum likelihood, confidence intervals, the Neyman-Pearson lemma, tests of hypotheses, likelihood ratio tests.

**Prerequisite(s):** MTH 411.

MTH 413 PROBABILITY AND STATISTICS III 3

Statistical decision theory, partitioning of sums of squares, analysis of variance, regression on several independent variables, multiple regression approach to analysis of variance, design of experiments.

**Prerequisite(s):** MTH 412.

MTH 430 REAL ANALYSIS 3

Continuation of MTH 330. Topics include the theory of convergence of sequences and series of functions in the context of metric spaces, uniform continuity, uniform convergence, and integration.

**Prerequisite(s):** MTH 330.

MTH 435 ADVANCED MULTIVARIATE CALCULUS 3

Topics include directional derivatives, chain rule, Lagrange multipliers, Taylor's formula, the mean value theorem, inverse mapping theorem, implicit function theorem, integration, Fubini's theorem, change of variables, line integrals, Green's theorem and Stoke's theorem.

**Prerequisite(s):** MTH 310.

MTH 440 INTRODUCTION TO MATHEMATICAL MODELING 3

Introduction to the use of mathematical techniques and results in constructing and modifying models designed to solve problems encountered in everyday life. Computer simulation and limitations thereof, dimensional analysis, scaling, and approximations at various levels.

**Prerequisite(s):** MTH 219, 310; permission of instructor.

MTH 441 MATHEMATICS CLINIC 3

Student teams will be responsible for the development and/or modification and testing of a mathematical model designed for a particular purpose. Faculty guidance.

**Prerequisite(s):** MTH 440; permission of department chairperson.

MTH 445 SPECIAL TOPICS IN (NAMED AREA) 1 - 3

Lectures in specialized areas such as abstract algebra, applied mathematics, complex variables, differential forms, functional analysis, Galois theory, game theory, general topology, normed linear spaces, probability theory, real variables, topological groups. May be taken more than once.

**Prerequisite(s):** Permission of department chairperson.

MTH 458 MATHEMATICAL MODELS IN FINANCE 3

Introduction to mathematical models in finance which include discrete and continuous models for stock price, interest rate model, bond pricing model, and option pricing model. Quantitative methods are introduced and employed. The methods include Black-Scholes formula, Monte-Carlo simulation, and binomial tree. Markowitz's optimal portfolio selection method is introduced and employed.

**Prerequisite(s):** MTH 310 or permission of instructor.

MTH 463 INTRODUCTION TO OPERATIONS RESEARCH 3

Topics include linear programming and its applications, game theory, Markov chains or linear codes and their error-correcting capabilities.

**Prerequisite(s):** MTH 310.

MTH 465 LINEAR ALGEBRA 3

Vector spaces, linear transformations and matrices, determinants, inner product spaces, invariant direct-sum decomposition and the Jordan canonical form.

**Prerequisite(s):** MTH 310.

MTH 466      GRAPH THEORY AND COMBINATORICS      3

Graphs as algebraic structures; eulerian, hamiltonian, complete, connected and planar graphs. Applications include scheduling and routing problems. Discussion of algorithms for optimal or near-optimal solutions. Combinatorial topics could include generating functions, recurrence relations, Polya's theorem and Ramsey Theory.

**Prerequisite(s):** MTH 310.

MTH 467      COMBINATORIAL DESIGN THEORY      3

Latin squares, mutually orthogonal Latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets, and finite geometries.

**Prerequisite(s):** MTH 308 or permission of instructor.

MTH 471      TOPOLOGY      3

Introduction to topological spaces and continuous functions including a study of separation and countability axioms and elementary properties of metric spaces, connected spaces, and compact spaces.

**Prerequisite(s):** MTH 310 or permission of instructor.

MTH 477      HONORS THESIS PROJECT      3

First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approval of University Honors Program.

MTH 478      HONORS THESIS PROJECT      3

Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and department chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approved 477; approval of University Honors Program.

MTH 490      READINGS IN (NAMED AREA)      1 - 3

Individual study in specialized areas carried out under the supervision of a staff member. May be taken more than once.

**Prerequisite(s):** Permission of department chairperson.





## School of Engineering

### (MEE) Mechanical and Aerospace Engineering (Collapse Description)

Mechanical engineers apply principles of the physical sciences, mathematics, economics, and human relations to conceive, design, and analyze a wide variety of products and systems. They may also direct manufacturing, distribution, and operation. Increasingly, mechanical engineers are called to design and manufacture products with reduced energy, waste, and pollution. Mechanical engineers can be employed in governmental organizations and a variety of industries including automotive, aerospace, biomedical, textiles, raw materials production, and energy. Job functions range from research, development, design, analysis, production, sales, consulting, and management. Many find that a mechanical engineering education is an excellent preparation for careers in law and medicine among other professions.

The curriculum in mechanical engineering serves as a broad-based education for positions in these diverse fields or for graduate study leading to advanced degrees. The first part of the mechanical engineering curriculum provides a firm foundation in mathematics, physics, chemistry, computer-aided drawing and conceptual design, and the humanities. The second part of the curriculum provides the engineering science fundamentals and laboratory experiences necessary for testing, design, as well as continued learning in the humanities, arts, and social sciences. The final part of the curriculum emphasizes synthesis of knowledge through major design projects sponsored by regional industries. The curriculum includes sufficient elective courses to permit a concentration in aerospace or energy systems as well as minors in several other areas, including digital systems and controls and engineering management. As well, open electives can be used to take courses in any field including language, business, and the sciences.

The overall educational experience, guided by the University of Dayton Catholic and Marianist heritage, seeks to have graduates who within several years after graduation are expected to:

1. be successfully engaging in professional work experiences which may include responsibilities in design, testing, manufacturing, and/or research and development;
2. demonstrate professional and personal growth through continuing education or through programmed training within their organizations, and most importantly, on their own;
3. serve as effective team members in their professional communities, provide solid leadership in their teams for their assigned tasks, and take initiative;
4. demonstrate commitment to a career and life where ethics, integrity, and service are paramount;
5. increasingly serve as mentors to their peers.

Specifically, this means that graduates will: have the ability to apply knowledge of mathematics, science, and engineering fundamentals; will have the ability to use techniques, skills and modern engineering tools necessary for engineering practice; will have the ability to design and conduct experiments, and analyze and interpret data; will have the ability to design components, systems and/or processes; will be able to independently identify, formulate and solve engineering problems; will have the ability to function effectively on engineering teams; will be able to communicate their ideas/solutions effectively to both technical and non-technical people; will have the broad education necessary to understand the social, environmental and economic impact of engineering solutions in a global context; will exhibit a commitment to ethical behavior, leadership and service within their profession; will have knowledge of and be able to think critically about contemporary issues; and will continue their personal and professional development by engaging in lifelong learning.

### Faculty

Kevin P. Hallinan, Chairperson

Professors Emeriti: Chuang, Eastep, Eimermacher, Minardi, Wurst

## the Bulletin

AUGUST 2009 - UNDERGRADUATE ISSUE

→ Explore a Different Issue

Search Academic Information General Information

### Explore by Department / Program:

Management and Marketing  
Management Information Systems, Operatio...  
Mathematics  
Mechanical and Aerospace Engineering

Explore

### Explore by Major / Minor:

Mathematics (MTH)  
Mechanical Engineering (MEE)  
Mechanical Engineering Technology (MCT)  
Mechanics of Engineering Systems (MES)

Explore

### Explore by Courses:

Marianist Studies (MST)  
Marketing (MKT)  
Mathematics (MTH)  
Mechanical and Aerospace Engineerin... (MEE)

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Professors: Ballal, Brockman, Doepker, Doyle, Ervin, Hallinan, Jain, Kashani, Kissock, Schauer, Sidhu, Zabarnick  
 Associate Professors: Altman, Endres, Joo, Murray, Petrykowski, Pinnell  
 Assistant Professors: Bigelow, Chuck, Chiasson  
 Adjunct Associate Professors: Burnley, Camberos, Doty, Fry  
 Adjunct Assistant Professors: Koloney, Price, Weber

**Majors/Minors (Collapse All)**

Major/Minor Name

Bachelor of Mechanical Engineering (MEE)

		Sem. Hrs.
First-Year		31-37
CHM 123	GENERAL CHEMISTRY	3
CHM 123L	GENERAL CHEMISTRY LABORATORY	1
EGR 100	ENRICHMENT WORKSHOP	0 - 3
EGR 103	ENGINEERING INNOVATION	2
ENG 101-102 or 114 or 198	COLLEGE COMPOSITION I (ENG 101) COLLEGE COMPOSITION II (ENG 102) FRESHMAN WRITING SEMINAR (ENG 114) ENGLISH SCHOLARS' SEMINAR (ENG 198)	3 - 6
HST 103 or 198	THE WEST AND THE WORLD (HST 103) HISTORY SCHOLARS' SEMINAR (HST 198)	3
MEE 101	INTRODUCTION TO MECHANICAL ENGINEERING	1
MEE 104L	COMPUTER GRAPHICS I	1
MTH 168	ANALYTIC GEOMETRY AND CALCULUS I	4
MTH 169	ANALYTIC GEOMETRY AND CALCULUS II	4
PHL 103	INTRODUCTION TO PHILOSOPHY	3
PHY 206	GENERAL PHYSICS I - MECHANICS	3
REL 103	INTRODUCTION TO RELIGION	3

## Sophomore-Year

First-Term		17
EGR 201	ENGINEERING MECHANICS	3
EGR 202	ENGINEERING THERMODYNAMICS	3
MEE 200	PROFESSIONAL DEVELOPMENT SEMINAR	0
MEE 227L	COMPUTER GRAPHICS II	1
MTH 218	ANALYTIC GEOMETRY AND CALCULUS III	4
PHY 207	GENERAL PHYSICS II - ELECTRICITY AND MAGNETISM	3
General Education elective		3
Second-Term		17
CMM 110	GROUP DECISION MAKING	1
ECE 201L	CIRCUIT ANALYSIS LABORATORY	1
EGM 202	DYNAMICS	3
EGM 303	MECHANICS II	3
EGR 203	ELECTRICAL AND ELECTRONIC CIRCUITS	3
MEE 200	PROFESSIONAL DEVELOPMENT SEMINAR	0
MTH 219	APPLIED DIFFERENTIAL EQUATIONS	3
General Education elective		3

## Junior-Year

First-Term		17
CMM 111 or 112	INFORMATIVE PUBLIC SPEAKING (CMM 111) PERSUASIVE PUBLIC SPEAKING (CMM 112)	1
MEE 308	FLUID MECHANICS	3
MEE 312-312L	ENGINEERING MATERIALS I (MEE 312) MATERIALS LABORATORY (MEE 312L)	4
MEE 314	COMPUTATIONAL METHODS	3
MEE 321	THEORY OF MACHINES	3
MEE 415	PROFESSIONAL DEVELOPMENT I	0

Science elective	3
Second-Term	17
CMM 113 INTERVIEWING	1
MEE 341 ENGINEERING EXPERIMENTATION	3
MEE 344 MANUFACTURING PROCESSES	3
MEE 410-410L HEAT TRANSFER (MEE 410) THERMO-FLUIDS LABORATORY (MEE 410L)	4
MEE 415 PROFESSIONAL DEVELOPMENT I	0
General Education elective	3
Open elective <sup>1</sup>	3
Senior-Year	
First-Term	15-16
MEE 415 PROFESSIONAL DEVELOPMENT I	0
MEE 425 or 427 AEROSPACE DESIGN (MEE 425) MECHANICAL DESIGN I (MEE 427)	3
MEE 431L MULTIDISCIPLINARY ENGINEERING DESIGN LABORATORY I	1
MEE 433 PROJECT MANAGEMENT AND INNOVATION	1
MEE 439 or 440 DYNAMIC SYSTEMS AND CONTROLS (MEE 439) FLIGHT VEHICLE PERFORMANCE (MEE 440)	4
Ethics elective (PHL 316 or REL 369)	3
MEE elective <sup>1,1</sup>	3
Second-Term	16
MEE 416 PROFESSIONAL DEVELOPMENT II	1
MEE 432L MULTIDISCIPLINARY ENGINEERING DESIGN LAB II	3
MEE 460 ENGINEERING ANALYSIS	3
General Education electives	3
MEE electives <sup>1</sup>	3
Open elective <sup>1</sup>	3

<sup>1</sup>Aerospace Concentration students take MEE 225 in place of an open elective, MEE 401 and MEE 413 in place of MEE electives.

Concentration in Aerospace Engineering (AEC)

This concentration is open only to mechanical engineering majors. The program provides a strong background for career specialization in the fields of aircraft and aerospace engineering.

Aerospace Engineering	Sem. Hrs.
	<b>29-34</b>
MEE 225 INTRODUCTION TO FLIGHT	3
MEE 401 AERODYNAMICS	3
MEE 409 AEROSPACE STRUCTURES	3
MEE 413 PROPULSION	3
MEE 418 GAS DYNAMICS	3
MEE 425 AEROSPACE DESIGN	3
MEE 431L MULTIDISCIPLINARY ENGINEERING DESIGN LAB I	1
MEE 432L MULTIDISCIPLINARY ENGINEERING DESIGN LAB II	3
MEE 499 SPECIAL PROBLEMS IN MECH AND AERO ENGR <sup>1</sup>	1-6
MEE 504 FUNDAMENTALS OF FLUID MECHANICS	3
Any approved graduate AEE course	3

<sup>1</sup>Must be related to Aerospace Engineering.

Concentration in Energy Systems - Mechanical (MES)

This concentration is open to all engineering students.

	Sem. Hrs.
<b>Energy Systems - Mechanical</b>	<b>31</b>
ASI 320 CITIES AND ENERGY <sup>1</sup>	3
EGR 202 ENGINEERING THERMODYNAMICS	3
MEE 308 FLUID MECHANICS	3
MEE 410 HEAT TRANSFER	3
MEE 431L MULTIDISCIPLINARY ENGINEERING DESIGN LAB I <sup>2</sup>	1
MEE 432L MULTIDISCIPLINARY ENGINEERING DESIGN LAB II <sup>2</sup>	3
Select one course from:	3
ASI 343 SPECIAL TOPICS IN PHILOSOPHY STUDY	1-3
PHL 316 ENGINEERING ETHICS	3
PHL 321 ENVIRONMENTAL ETHICS	3
REL 369 CHRISTIAN ETHICS AND ENGINEERING	3
Select one course from:	3
CEE 390 ENVIRONMENTAL POLLUTION CONTROL	3
CEE 434 WATER AND WASTEWATER ENGINEERING	3
ECO 310 ECONOMICS OF THE ENVIRONMENT	3
POL 371 ENVIRONMENTAL POLICY	3
Select three courses from:	9
AEE or MEE 560 PROPULSION SYSTEMS	3
AEE or MEE 565 FUNDAMENTALS OF FUELS & COMBUSTION	3
AEE or MEE 566 COMBUSTION THEORY	3
EGR 320 SYSTEMS DESIGN SCHOLARS SEMINAR	3
EGR or MEE 498 RESEARCH AND INNOVATION LAB <sup>3</sup>	1-6
MEE 413 or 513 PROPULSION	3
MEE 420 or 569 ENERGY EFFICIENT BUILDINGS	3
MEE 471 or 571 DESIGN OF THERMAL SYSTEMS	3
MEE 472 or 572 DESIGN FOR ENVIRONMENT	3
MEE 473 or 573 RENEWABLE ENERGY SYSTEMS	3
MEE 478 or 578 ENERGY EFFICIENT MANUFACTURING	3
MEE 511 ADVANCED THERMODYNAMICS	3
Any approved AEE or MEE elective	3

<sup>1</sup>Or approved history or social science elective.

<sup>2</sup>Focus on energy related project.

<sup>3</sup>Must be related to Energy Systems.

Minor in Aerospace Engineering (AAE)

This minor is open to chemical, civil, and mechanical engineering majors. The program provides a strong background for career specialization in the fields of aircraft and aerospace engineering.

	Sem. Hrs.
Elective	3

<sup>1</sup>Or any approved graduate AEE course.

## Minor in Design and Manufacturing Engineering (DME)

This minor is open to all engineering majors. The program provides the concepts of mechanical design, manufacturing processes, statistical quality control, robotics, and flexible, integrated, and automated manufacturing systems.

		Sem. Hrs.
<b>Design and Manufacturing Engineering</b>		<b>14</b>
MEE 312-312L	ENGINEERING MATERIALS I (MEE 312) MATERIALS LABORATORY (MEE 312L)	4
MEE 427	MECHANICAL DESIGN I	3
MEE 431L	MULTIDISCIPLINARY ENGINEERING DESIGN LABORATORY I	1
Select two courses from:		6
ISE 421	INTRODUCTION TO OPERATIONS RESEARCH	3
ISE 460	QUALITY ASSURANCE	3
MEE 428	MECHANICAL DESIGN II	3
MEE 434	MECHATRONICS	3
MEE 438	ROBOTICS AND FLEXIBLE MANUFACTURING	3
MEE 499 <sup>1</sup>	SPECIAL PROBLEMS IN MECHANICAL AND AEROSPACE ENGINEERING	1 - 6
MEE 545	COMPUTATIONAL METHODS FOR DESIGN	3
MEE 580	STAT PROC CONTROL BY FEEDBACK ADJ	3
MEE 585	DESIGN FOR PRODUCIBILITY	3

<sup>1</sup>Must be related to Design or Manufacturing.

## Minor in Dynamic Analysis of Mechanical Systems (DAS)

This minor is open to civil and mechanical engineering majors. The program provides study in the general area of dynamics, and is designed to give the student a broad understanding of mechanical systems and their use in machinery, vehicles, structures, etc. MEE students must select at least two courses that are not part of their required program.

		Sem. Hrs.
<b>Dynamic Analysis of Mechanical Systems</b>		<b>12</b>
Select four courses from:		12
MEE 321	THEORY OF MACHINES	3
MEE 428	MECHANICAL DESIGN II	3
MEE 436	VEHICLE PERFORMANCE ANALYSIS	3
MEE 499 <sup>1</sup>	SPECIAL PROBLEMS IN MECHANICAL AND AEROSPACE ENGINEERING	1 - 6
EGM 519	ANALYTIC DYNAMICS	3
MEE 527	AUTOMATIC CONTROL THEORY	3
MEE 535	ADVANCED MECHANICAL VIBRATIONS	3
MEE 536	RANDOM VIBRATIONS	3

<sup>1</sup>Must be related to Dynamic Analysis or Controls.

## Minor in Mechanics of Engineering Systems (MES)

This minor is open to chemical, civil, computer, and electrical engineering majors. The program provides for additional study in basic mechanics with emphasis in dynamics. This knowledge can be applied to design of machines, vehicles, and structures.

		Sem. Hrs.
<b>Mechanics of Engineering Systems</b>		<b>12</b>

Select four courses from: <sup>1</sup>		12
EGM 303	MECHANICS II	3
MEE 321	THEORY OF MACHINES	3
MEE 427	MECHANICAL DESIGN I	3
MEE 428	MECHANICAL DESIGN II	3
MEE 436	VEHICLE PERFORMANCE ANALYSIS	3
MEE 499 <sup>2</sup>	SPECIAL PROBLEMS IN MECHANICAL AND AEROSPACE ENGINEERING	1 - 6
MEE 503	INTRODUCTION TO CONTINUUM MECHANICS	3
MEE 527	AUTOMATIC CONTROL THEORY	3
MEE 546	FINITE ELEMENT ANALYSIS I	3

<sup>1</sup>Courses selected may not be those already required for student's major.

<sup>2</sup>Must be related to Mechanics.

**Courses (Collapse All Courses)**

Code	Title	Sem. Hrs.
MEE 101	INTRODUCTION TO MECHANICAL ENGINEERING	1
Weekly meeting of first-semester, first-year mechanical engineering students. Orientation to engineering problem solving and team building through hands on applications.		
MEE 104L	COMPUTER GRAPHICS I	1
Fundamentals of engineering graphics and the part that graphical communication plays in engineering. Introduction to computer aided design (CAD).		
MEE 198	RESEARCH AND INNOVATION LABORATORY	1 - 6
Students participate in (1) selection and design, (2) investigation and data collection, (3) analysis, and (4) presentation of a research project. Research can include, but is not limited to, developing an experiment, collecting and analyzing data, surveying and evaluating literature, developing new tools and techniques including software, and surveying, brainstorming, and evaluating engineering solutions and engineering designs. Proposals from teams of students will be considered.		
MEE 200	PROFESSIONAL DEVELOPMENT SEMINAR	0
Presentations on contemporary and professional engineering subjects by students, faculty, and engineers in active practice. The seminar addresses topics in key areas that complement traditional courses and prepare distinctive graduates, ready for life and work. Registration required for all sophomore students.		
MEE 225	INTRODUCTION TO FLIGHT	3
An introductory course designed to provide students with a basic understanding of the multitude of disciplines that comprise the aeronautical engineering profession. A background and brief history of flight are covered. Foundational knowledge of aerodynamics, propulsion, aerostructures, aircraft performance and aerospace vehicle design. Laboratory included. <b>Prerequisite(s):</b> PHY 206.		
MEE 227L	COMPUTER GRAPHICS II	1
Advanced engineering graphics and graphical communication in engineering; introduction to project design. <b>Prerequisite(s):</b> MEE 104L.		
MEE 298	RESEARCH AND INNOVATION LABORATORY	1 - 6
Students participate in (1) selection and design, (2) investigation and data collection, (3) analysis, and (4) presentation of a research project. Research can include, but is not limited to, developing an experiment, collecting and analyzing data, surveying and evaluating literature, developing new tools and techniques including software, and surveying, brainstorming, and evaluating engineering solutions and engineering designs. Proposals from		

teams of students will be considered.

MEE 308 FLUID MECHANICS 3

An introductory course in fluid mechanics. Fundamental concepts including continuity, momentum, and energy relations. Control volume analysis and differential formulations. Internal and external flows in laminar and turbulent regimes. One-dimensional compressible flows.

**Prerequisite(s):** EGR 202.

**Corequisite(s):** MTH 219.

MEE 312 ENGINEERING MATERIALS I 3

Atomic structure, bonding, and arrangement in solids. Mechanical and physical properties of solids, phase equilibria, and processing of solids. Strengthening methods in solids, principles of material selection, and characteristics of non-ferrous alloys, polymers, ceramic composites, and construction materials.

**Corequisite(s):** EGM 303; MEE 312L.

MEE 312L MATERIALS LABORATORY 1

Conducting mechanical and physical tests on solids including, but not limited to tension, compression, bending, hardness, and impact. Metallographic examination of surfaces. Test standards, data reduction, analysis, interpretation, and written and oral communication of test results.

**Corequisite(s):** EGM 303; MEE 312.

MEE 314 COMPUTATIONAL METHODS 3

Detailed introduction to solving engineering problems through programming in the Matlab technical computing software package. Fundamentals of algorithms, including iterative processes, arrays and logic operations. Graphing of 2D and 3D functions. Graphical user interfaces. Focus on engineering applications that utilize the mathematical techniques of linear algebra, statistics and numerical methods.

**Corequisite(s):** MTH 219.

MEE 321 THEORY OF MACHINES 3

Applications and design of mechanisms; use of graphical and analytical techniques for the kinematic and dynamic analysis and synthesis of machines. Analysis and design of cams, gears and gear trains. Balancing of rotating masses.

**Corequisite(s):** EGM 202.

MEE 341 ENGINEERING EXPERIMENTATION 3

Basic sensors and instrumentation, design of experiments, data acquisition and processing, and uncertainty and statistical analysis of data. Measurement of strain, motion, pressure, temperature, flow and sound. Measurement applications to engineering phenomena or systems. Course will utilize a mix of lecture, laboratory experiments, and demonstrations. Also a term project to provide design of experiment experience.

**Corequisite(s):** EGM 303; MEE 308.

MEE 344 MANUFACTURING PROCESSES 3

Casting processes including casting defects and design of castings; metal working processes such as extrusion, forging, rolling and wire drawing; sheet metal forming; welding processes; powder metallurgy and design principles for P/M parts, metal removal processes; forming and shaping plastics and composite materials; rapid prototyping. Design principles for manufacturability. Includes laboratory.

**Prerequisite(s):** MEE 312.

MEE 398 RESEARCH AND INNOVATION LABORATORY 1 - 6

Students participate in (1) selection and design, (2) investigation and data collection, (3) analysis, and (4) presentation of a research project. Research can include, but is not limited to, developing an experiment, collecting and analyzing data, surveying and evaluating literature, developing new tools and techniques including software, and surveying, brainstorming, and evaluating engineering solutions and engineering designs. Proposals from teams of students will be considered.

MEE 401	AERODYNAMICS	3
Fundamentals of steady, incompressible, and inviscid aerodynamic flows over wings. Emphasis on force and moment determination for air foil and finite wings.		
<b>Prerequisite(s):</b> MEE 308.		
MEE 409	AEROSPACE STRUCTURES	3
Structural properties of wing and fuselage sections. Nonsymmetrical bending of skin-stringer wing sections. Shear stresses in thin-walled and skin-stringer multiple-celled sections. Deflection by energy methods. Introduction to finite element stiffness method.		
<b>Prerequisite(s):</b> EGM 303.		
MEE 410	HEAT TRANSFER	3
Fundamentals of conduction, convection, and thermal radiation energy transfer. Conduction of heat in steady and unsteady state. Principles of boundary layer theory applicable to free and forced convection heat transfer for internal and external flows. Radiation analysis with and without convection and conduction.		
<b>Prerequisite(s):</b> MEE 308.		
MEE 410L	THERMO-FLUIDS LABORATORY	1
Hands-on opportunities for students to gain knowledge of instrumentation used for temperature, flow, heat, and pressure measurement and to visualize thermo-fluids phenomena in a rich problem solving context. Phenomena to be studied include: boundary layer and separation phenomena, internal flow characteristics, hydraulics, conduction, convection, and combustion.		
<b>Corequisite(s):</b> MEE 410.		
MEE 413	PROPULSION	3
Principles of propulsive devices, aerothermodynamics, diffuser and nozzle flow, energy transfer in turbo-machinery; turbojet, turbo-fan, prop-fan engines; turbo-prop and turboshaft engines. RAM and SCRAM jet analysis and a brief introduction to related materials and air frame-propulsion interaction.		
<b>Prerequisite(s):</b> MEE 308.		
MEE 415	PROFESSIONAL DEVELOPMENT I	0
Presentations on contemporary mechanical engineering subjects by students, faculty, and engineers in active practice; student involvement in professional and service activities. Registration required of all junior and senior students not registered in MEE 416.		
MEE 416	PROFESSIONAL DEVELOPMENT II	1
Presentations on contemporary mechanical engineering subjects by students, faculty, and engineers in active practice; student involvement in professional and service activities. Registration required of all students in their last term prior to graduation.		
MEE 417	INTERNAL COMBUSTION ENGINES	3
Combustion and energy release processes. Applications to spark and compression ignition, thermal jet, rocket, and gas turbine engines. Emphasis on air pollution problems caused by internal combustion engines. Idealized and actual cycles studied in preparation for laboratory testing of I. C. engines.		
<b>Prerequisite(s):</b> EGR 202 or permission of instructor.		
MEE 418	GAS DYNAMICS	3
Application of the basic thermodynamic and fluid motion laws to the solution of engineering problems in fluid mechanics. Use of differential and integral equations for internal and external flow of compressible fluids with friction and heat transfer. Isentropic flow; adiabatic flow; normal and oblique shocks; Prandtl-Meyer flow; Fanno and Rayleigh line flow.		
<b>Prerequisite(s):</b> MEE 308.		
MEE 420	ENERGY EFFICIENT BUILDINGS	3



Provides knowledge and skills necessary to design and operate healthier, more comfortable, more productive, and less environmentally destructive buildings. A specific design target of E/3 (typical energy use divided by three) is established as a goal. Economic, thermodynamic, and heat transfer analyses are utilized. Extensive software development.

**Prerequisite(s):** MEE 410.

MEE 425 AEROSPACE DESIGN 3

Design project in which teams of students synthesize an engineering solution to a complex aerospace related problem through the integration of mechanical and aerospace engineering principles.

**Prerequisite(s):** (MEE 225, 401, 409) or permission of instructor.

**Corequisite(s):** MEE 431L.

MEE 427 MECHANICAL DESIGN I 3

Stress and deflection analysis of machine components; theories of failure; fatigue failure of metals. Design and analysis of mechanical components such as gears, shafts, bearings and springs.

**Prerequisite(s):** EGM 303; MEE 321.

**Corequisite(s):** MEE 431L.

MEE 428 MECHANICAL DESIGN II 3

Advanced topics in stress and deflection analysis; analysis and design of mechanical elements such as gears, journal and ball bearings, belts, brakes, and clutches; principles of fracture mechanics; failure analysis; machinery construction principles. Contemporary design methods and issues associated with the product development cycle.

**Prerequisite(s):** MEE 427.

MEE 431L MULTIDISCIPLINARY ENGINEERING DESIGN LABORATORY I 1

Multidisciplinary team design projects applying general mechanical engineering knowledge. Product development using product realization process (PRP) including: proposal development; design specifications, conceptualization and decision analysis. Projects normally result in a final design and prototyping in a follow-on course. Projects supplemented with an introduction to mechanical components and Computer Aided Engineering (CAE) methods.

**Corequisite(s):** MEE 425 or 427.

MEE 432L MULTIDISCIPLINARY ENGINEERING DESIGN LAB II 3

One hour lecture and five hours of lab per week. Focus of the lecture is on engineering project management, including communication, collaboration, project tracking methods, cost estimating, overhead, direct labor, time value of money, depreciation and return on community based sponsors. Detailed evaluation of the Product Realization Process focusing on conceptual design, embodiment design, final design and prototyping. Analysis of the design criteria for safety, ergonomics, environment, cost and sociological impact. Periodic oral and status reports. Culminates in a comprehensive written report and oral presentation.

**Prerequisite(s):** MEE 425 or 427.

MEE 433 PROJECT MANAGEMENT AND INNOVATION 1

Introduces students and teams to project management, entrepreneurship, and innovation. Topics include project management, cost estimating, time value of money, patent law, marketing, finance, and business plan development.

**Prerequisite(s):** Junior status.

MEE 434 MECHATRONICS 3

Emphasis on the integration of sensors, micro-controllers, electromechanical actuators, and control theory in a 'smart' system for a semester long design project. Topics include: sensor signal processing, electromechanical actuator fundamentals, interfacing of sensors and actuators to micro-controllers, digital logic, and programming of micro-controllers, programmable logic controllers and programmable logic devices. Equal mix of lecture and laboratory.

**Prerequisite(s):** ECE 323.

MEE 436	VEHICLE PERFORMANCE ANALYSIS	3
Ground, air, water, and space vehicles. Development of force, moment, and kinematic equations. Advanced applications including stability, control, and performance evaluations. Vehicle simulation. Analog computation. <b>Prerequisite(s):</b> MEE 308 or permission of instructor.		
MEE 438	ROBOTICS AND FLEXIBLE MANUFACTURING	3
Overview of industrial robots; physical configuration, operation, and programming of robots; actuators, drive mechanisms, sensors, vision systems, controls, and control methods for robots; economic considerations; and automated factory concept. <b>Prerequisite(s):</b> MEE 321.		
MEE 439	DYNAMIC SYSTEMS AND CONTROLS	4
Dynamic systems modeling with special emphasis on mechanical systems (one and two degrees of freedom). Covers both transfer function and state space modeling techniques. Analogues drawn between mechanical, electrical, fluid, and thermal physical domains. System nonlinearities and model linearization methods are discussed. Analytical solutions of linear ordinary differential equations using Laplace transformation and state space theory. Feedback control theory, including root locus and frequency response techniques. <b>Prerequisite(s):</b> EGM 202; MTH 219.		
MEE 440	FLIGHT VEHICLE PERFORMANCE	4
This course is intended to introduce the student to the flight mechanics of aerospace vehicles. Some familiarity with aircraft performance, static stability and control is assumed, but not required. We will use modern analysis methods to develop the topical details including: 1) a study of aerodynamics involved in-flight vehicle motion to obtain an understanding of influence coefficients; 2) use of linear algebra to develop a rational approach to modeling aircraft dynamics; 3) an introduction to modern control theory methodology; and 4) problems and examples that illustrate the use of desktop computational tools currently available. <b>Prerequisite(s):</b> (EGM 202; MEE 401, 225; MTH 219) or permission of instructor.		
MEE 460	ENGINEERING ANALYSIS	3
Case study approach to engineering problem solving. Emphasis on breaking down problems to tractable parts, modeling physical systems and selection of solution techniques. Problems related to thermal, fluid, structural, and dynamic systems. Problems typically involve solution of ordinary and partial differential equations, Fourier analysis of periodic behavior, simulation, optimization and/or statistical analysis. Analytical and numerical solution techniques, with an emphasis on selecting the most appropriate technique and understanding the limitations of the analysis. <b>Prerequisite(s):</b> MEE 410.		
MEE 471	DESIGN OF THERMAL SYSTEMS	3
This course integrates thermodynamics, heat transfer, engineering economics, and simulation and optimization techniques in a design framework. Topics include design methodology, energy analysis, heat exchanger networks, thermal-system simulation and optimization techniques.		
MEE 472	DESIGN FOR ENVIRONMENT	3
Emphasis on design for environment over the life cycle of a product or process, including consideration of the mining, processing, manufacturing, use, and post-life stages. Course provides knowledge and experience in invention for the purpose of clean design, life cycle assessment strategies to estimate the environmental impact of products and processes, and cleaner manufacturing practices. Course includes a major design project.		
MEE 473	RENEWABLE ENERGY SYSTEMS	3
Introduction to the impact of energy on the economy and environment. Engineering models of solar thermal and photovoltaic systems. Introduction to wind power. Fuel cells and renewable sources of hydrogen.		
MEE 478	ENERGY EFFICIENT MANUFACTURING	3

This course presents a systematic approach for improving energy efficiency in the manufacturing sector. Current patterns of manufacturing energy use, the need for increased energy efficiency, and models for sustainable manufacturing are reviewed. The lean-energy paradigm is applied to identify energy efficiency opportunities in industrial, electrical, lighting, space conditioning, motor drive, compressed air, process heating, process cooling, and combined heat and power systems.

**Prerequisite(s):** (EGR 202 or equivalent) or permission of instructor.

MEE 498 RESEARCH AND INNOVATION LABORATORY

1 - 6

Students participate in (1) selection and design, (2) investigation and data collection, (3) analysis, and (4) presentation of a research project. Research can include, but is not limited to, developing an experiment, collecting and analyzing data, surveying and evaluating literature, developing new tools and techniques including software, and surveying, brainstorming, and evaluating engineering solutions and engineering designs. Proposals from teams of students will be considered.

MEE 499 SPECIAL PROBLEMS IN MECHANICAL AND AEROSPACE  
ENGINEERING

1 - 6

Particular assignments to be arranged and approved by department chairperson.





# the Bulletin

AUGUST 2009 - UNDERGRADUATE ISSUE

→ Explore a Different Issue

## College of Arts and Sciences

### (MIL) Military Science, ROTC (Collapse Description)

The Department of Military Science offers the Reserve Officers Training Corps (ROTC) program on the campus, providing instruction in general military subjects applicable to all branches of the Army. The purpose of the Reserve Officers Training Corps is to develop selected college-educated men and women for positions of responsibility as officers in the active Army, the Army Reserve, and the Army National Guard.

The military science program is designed to develop a high degree of personal honor, self-reliance, and leadership and to provide the means of becoming better informed on matters of national defense. The program provides men and women who are working toward a baccalaureate degree the opportunity to become officers in the United States Army.

The four-year program is divided into a basic course<sup>1</sup> (normally first and second years) and an advanced course (normally third and fourth years), and it is offered to all students for academic credit.

The basic course emphasizes practical leadership techniques and management concepts that apply equally in both military organizations and private industry. While in this phase of the program, students, other than contracted ROTC scholarship students, have no military obligation and are simply taking ROTC courses, like any other college courses, for credit. Students who receive credit for the basic course and demonstrate a potential for becoming effective officers may continue to pursue a commission by enrolling in the advanced course.

The advanced course is designed to prepare students to be Army lieutenants by including practical work in tactics, training, management, leadership techniques, and the exercise of command. Advanced course students are paid \$450 (juniors) and \$500 (seniors) a month during the school year. During the summer between the junior and senior years, cadets enroll in a thirty-two day Leadership Development Assessment Course (LDAC), which allows them to apply the leadership and technical training learned in the classroom. While at LDAC, students are paid half a second lieutenant's monthly salary or about \$1100.

In addition to ROTC instruction, a student must attain an equal level of professional military education. Army officers, like other professionals, cannot be satisfied with a collection of knowledge found only in their academic field. In order to be prepared to become officers, students are required to complete a course in military history.

The minor in military science provides students with the opportunity to study the theory and practice of the military profession. The minor consists of twelve semester hours of upper-level courses. Students must complete MIL 301, 302, 401, and 402. Students desiring to minor in military science should notify their respective deans and the Department of Military Science.

The ROTC program is also available to students with three or two years remaining on campus, including graduate students. Special programs, such as ROTC summer Leader's Training Course (LTC), have been established to allow second-semester sophomores and juniors or seniors who will be going on to graduate school to participate in the military science program.

There is also a special program whereby veterans and JROTC students can receive advanced placement credit in Army ROTC. Veterans and students with high school JROTC training, with the approval of the chairperson of the Department of Military Science, may receive placement credit for part or all of the basic course. Each case will be judged individually so that the best interests of both the student and the military may be served.

Army ROTC scholarships are available to students. These scholarships cover four, three, and two-year periods and provide for full tuition and fees, \$1200 a year for books, and a tax-free subsistence allowance of \$300 a month for first year cadets, \$350 a

Search Academic Information General Information

#### Explore by Department / Program:

Management Information Systems, Operatio...  
Mathematics  
Mechanical and Aerospace Engineering  
Military Science, ROTC

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#### Explore by Major / Minor:

Mechanical Engineering Technology (MCT)  
Mechanics of Engineering Systems (MES)  
Middle Childhood Education (EMS)  
Military Science, ROTC (MIL)

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#### Explore by Courses:

Mathematics (MTH)  
Mechanical and Aerospace Engineerin... (MEE)  
Mechanical Engineering Technology (MCT)  
Military Science, ROTC (MIL)

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month for sophomore cadets, \$450 a month during the junior year and \$500 a month in the senior year for up to ten months. Scholarships, which are highly competitive, are awarded to those who demonstrate outstanding scholarly, athletic and leadership ability.

<sup>1</sup>At Sinclair Community College, MIL 121, 122, 123 complete requirements for MIL 101 and 102 at UD; MIL 221, 222, 223 complete requirements for MIL 201 and 202.

### Faculty

Lt. Col. Charles Schretzman, U.S. Army, Chairperson  
 Professor: Schretzman  
 Assistant Professors: Adams, Bender, Womack  
 Instructors: Dohr, Gautreaux

### Majors/Minors

Major/Minor Name

 Minor in Military Science, ROTC (MIL)

#### Military Science, ROTC

MIL 301, 302, 401, 402

Sem. Hrs.

12

12

### Courses (Collapse All Courses)

Code	Title	Sem. Hrs.
MIL 101	LEADERSHIP I	1
ROTC programs and opportunities; rappelling, leadership, communications and management skills, and rifle marksmanship. Optional field trips, field exercises, physical training, leadership laboratory and social events.		
MIL 102	LEADERSHIP II	1
Rifle marksmanship, fundamentals and principles of leadership, management techniques for individual, group behavior and leadership dimensions. Optional physical training, leadership laboratory, and social events.		
MIL 201	MAP READING AND SMALL UNIT TACTICS	2
Study of basic map reading skills, small unit tactics, movement techniques, weapons marksmanship orientation, and survival skills. Participation in leadership laboratory and two field training exercises. Optional physical training and social events.		
MIL 202	MILITARY LEADERSHIP	2
Interactive study of the fundamentals of military leadership, ethical decision-making, effective counseling techniques, and conflict resolution. Study of the role and branches of the US Army and the role of the commissioned, warrant, and noncommissioned officer. Optional participation in leadership laboratories, field training exercises, physical fitness training, and social events.		
MIL 301	LEADING SMALL ORGANIZATIONS I	3
Study of the methodology, qualities, and the development of leaders through a series of practical opportunities to lead small groups, receive personal assessments, encouragement, and lead again in situations of increasing complexity. Physical training, leadership laboratory, historical field trip, social events, and field training exercises are mandatory.		
MIL 302	LEADING SMALL ORGANIZATIONS II	3
Study of emplacement of communications equipment and weapons system. Application of small unit tactics, land navigation-terrain association, operations orders and roles of various branches of the Army. Physical training, leadership laboratory, social events, and field training exercises are mandatory.		
MIL 401	LEADERSHIP MANAGEMENT AND STAFF	3

Study of military staff functions; how to conduct meetings, briefing, and training; how to conduct various types of counseling; and effective and ineffective leadership techniques. Physical training, leadership laboratory, historical field trip, social events, and field training exercises are mandatory.

MIL 402 APPLIED LEADERSHIP AND MANAGEMENT

3

Leadership and management studies in professionalism, ethics, and military justice. Various types of military correspondence and the responsibilities of an officer. Physical training, leadership laboratory, field training exercises, and social events are mandatory.

MIL 411 LIMITED WAR/LOW INTENSITY CONFLICT

2

This course will identify and discuss the roles and mission of the branches found within the U.S. Army as they relate to limited war and low intensity conflicts. Historical examples of leadership in limited war/low intensity conflicts are identified and discussed. Incorporates the background and experience of resident instructors and presentations by visiting service representatives.

MIL 412 U.S. MILITARY TODAY

2

This course will identify and discuss the roles, missions, organizational structure and equipment, tactical and strategic employment, and future trends of the Armed Services. Incorporates the background and experience of resident instructors and presentations by visiting service representatives.

MIL 477 HONORS THESIS PROJECT

3

First of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and departmental chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approval of University Honors Program.

MIL 478 HONORS THESIS PROJECT

3

Second of two courses leading to the selection, design, investigation, and completion of an independent, original Honors Thesis project under the guidance of a faculty research advisor. Restricted to students in the University Honors Program with permission of the program director and departmental chairperson. Students pursuing an interdisciplinary thesis topic may register for three semester hours each in two separate disciplines in consultation with the department chairpersons.

**Prerequisite(s):** Approved 477 and approval of University Honors Program.

