REQUEST FOR ADDING, CHANGING, SUSPENDING OR DROPPING AN UNDERGRADUATE CURRICULUM

Department: Geology and Geophysics
College: Science
Name of Curriculum/Major: Geology
Type of Degree: BS

Has this change been discussed with and approved by all departments/colleges affected? Yes (X) No ( ) N/A ( )

ATTACH JUSTIFICATION for all actions: Use separate sheet.
ATTACH RESPONSE from any departments affected [i.e. any department whose course(s) are to be added.]
ATTACH FORM D ADDENDUM for all new curricula or changes involving General Education courses.

ACTION (check appropriate box):

( ) ADDING: The entire new curriculum, by semester, must be typed on plain sheets and attached to Form D. (See sample layout attached.)

(X) CHANGING: Regardless if all semesters of a curriculum are to be changed or only parts, the present and proposed (eight-semester) recommended path should be attached on separate pages. On the Present recommended path, use strikeout and on the Proposed recommended path, highlight areas to identify deletions and additions. Do not use boldface to designate changes as boldface is reserved for critical requirements within the recommended path. Explain all changes adequately on attachment.

( ) SUSPENDING: Provide an adequate explanation for suspending the curriculum on plain sheets and attach.

( ) DROPPING: Provide an adequate explanation for dropping the curriculum on plain sheets and attach.

CURRICULUM

<table>
<thead>
<tr>
<th>PRESENT</th>
<th>PROPOSED</th>
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<tbody>
<tr>
<td>Total semester hours in current curriculum: 120</td>
<td>Total semester hours in proposed curriculum: 120</td>
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</table>

APPROVALS:
Department Faculty Approval Date: 1/17/14
College Faculty Approval Date: 1/30/14

Carol M. Wicks
Department Chair's Signature (Date): 1/9/14
Chair, FS C & C Committee

College Dean's Signature (Date): 2/8/14

College Contact: Kara Kubicek
College Contact E-mail: kkubicek@isu.edu
Changes in Geology Curriculum
Justification:

Changes to the BS GEOLOGY curriculum are needed to delete Physics courses (PHYS 2101 and PHYS 2102 and prerequisite PHYS 1100) that will no longer be taught with the new courses that the Physics Department has created to replace them. The new sequence is PHYS 2110, 2112 and 2113. Our department has decided to require students to take one of the following two options of physics courses for the BS degree in Geology: 1) a new option two-course option of PHYS 2110 and PHYS 2113; or 2) the existing two-course sequence of PHYS 1201 and PHYS 1202 or PHYS 2002. PHYS 2110 is a prerequisite for PHYS 2113.

These changes to the BS GEOLOGY curriculum are achieved by a) removing PHYS 2101 and PHYS 2102; and b) adding PHYS 2110, PHYS 2113. The Physics Department has agreed to our request that students in the Geology and Geophysics Department can continue to take the two course sequence of PHYS 1201 and PHYS 1202 (Physics for Physics majors) as is currently the case.

The total number of hours for the recommended path remains to be 120 hrs.

The semester 4 Critical Requirement is revised so that PHYS 2101 is replaced by PHYS 2110.

The summary of changes for the BS GEOLOGY recommended path is shown below.

Semester 3: delete PHYS 2101; add PHYS 2110
Semester 4: delete PHYS 2102; add option of PHYS 2113
GENERAL EDUCATION REQUIREMENTS

When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement. Include course rubric, number, and credit hours when curricula differ from the default values. Indicate the curriculum semester for all General Education courses.

<table>
<thead>
<tr>
<th>General Education Requirement</th>
<th>Course(s)</th>
<th>Credit Hours</th>
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<td>Analytical Reasoning (6 hrs.)</td>
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<td>MATH course.)</td>
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<td>(At least three hours at the 2000-level.)</td>
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Present
All GEOLOGY students follow the same basic curriculum during the first five semesters of study. Laboratory and field studies are integrated into the curriculum at all levels and include a six-week summer field geology course at the department's permanent field camp in the Colorado Front Range.

SCHOLASTIC REQUIREMENTS. Students must maintain a 2.0 Cumulative and LSU GPA and earn a grade of "C" or better in all required science and mathematics courses, and in ENGL 2000. A student who fails to earn a 2.0 Semester GPA or who earns grades of D/F in courses requiring "C" or higher is considered to not be making minimal progress.

This curriculum assumes students enter the university ready to take ENGL 1001, MATH 1550, & PHYS 1201, as demonstrated through placement tests. Students needing to complete preparatory courses (MATH 1022/1023, PHYS 1100) should plan to attend summer school to catch up with the curriculum.

NOTE: The courses to be deleted from semesters 3 and 4 are shown in strikethrough text.

GEOLOGY Critical Requirements
Semester 1: "C" or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.
Semester 2: "C" or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.
Semester 3: "C" or better in BIOL 1201 and MATH 1550: Admission to the College; 2.0 Cumulative, LSU and Semester GPA.
Semester 4: "C" or better in GEOL 2061/2081 and PHYS 1201/2101; 2.0 Cumulative, LSU and Semester GPA.
Semester 5: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: "C" or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.
- ENGL 1001 English Composition (3)
- CHEM 1201 General Chemistry I
- GEOL 1001 General Geology: Physical (3)
- GEOL 1601 Physical Geology Laboratory (1)
- MATH 1550 Analytic Geometry and Calculus I (5)

Total Semester Hours: 15

Semester 2
CRITICAL: "C" or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.
- CHEM 1202 General Chemistry (3)
- CHEM 1212 General Chemistry Laboratory (2)
- GEOL 1003 General Geology: Historical (3)
- GEOL 1602 Historical Geology Laboratory (1)
- MATH 1552 Analytic Geometry and Calculus (4)
- BIOL 1201 Biology for Science Majors I (3)

Total Semester Hours: 16

Semester 3
CRITICAL: "C" or better in BIOL 1201 and MATH 1550; Admission to the College; 2.0 Cumulative, LSU and Semester GPA.
- BIOL 1202 Biology for Science Majors II (3)
- PHYS 1201 General Physics for Physics Majors (4) or PHYS 2101 General Physics for Technical Students (3)
- PHYS 1208 General Physics Laboratory for Physics Majors (1) or PHYS 2108 Introductory Physics Laboratory (1)
- General Education course – Arts (3)
- First course in Foreign Language Sequence (4)
- ENGL 2000 English Composition (3)
- GEOL 2061 History of the Biosphere (4)
- GEOL 2081 Mineralogy (4)
- PHYS 1202 General Physics for Physics Majors (4) or PHYS 2102 General Physics for Technical Students (3)
- PHYS 2002 General Physics (3)
- PHYS 1209 General Physics Laboratory for Physics Majors (1) or PHYS 2109 General Physics Laboratory (1)

Total Semester Hours: 15-14

Semester 4
CRITICAL: "C" or better in GEOL 2061/2081 and PHYS 1201/2101; 2.0 Cumulative, LSU and Semester GPA.
- ENGL 3032 Sedimentology and Depositional Environments (4)
- GEOL 3041 Igneous and Metamorphic Petrology (4)
- General Education course – Humanities (ENGL/HNRS 2000-level) (3)
- General Education course – Social Sciences (3)

Total Semester Hours: 14

Semester 5
CRITICAL: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.
- GEOL 3071 Structural Geology (4)
- General Education course – Social Sciences (2000-level) (3)
- General Education course – Humanities (3)
- Approved Elective (6)

Total Semester Hours: 16

Semester 6
CRITICAL: "C" or better in GEOL 3071 Structural Geology (4)
- GEOL 4000-level Courses (6)

Total Semester Hours: 12

Semester 7
CRITICAL: "C" or better in GEOL 4000-level Courses (6)
- Approved Electives (6)

Total Semester Hours: 10-12

120 Total Semester Hours
Proposed

All GEOLOGY students follow the same basic curriculum during the first five semesters of study. Laboratory and field studies are integrated into the curriculum at all levels and include a six-week summer field geology course at the department's permanent field camp in the Colorado Front Range.

SCHOLASTIC REQUIREMENTS. Students must maintain a 2.0 Cumulative and LSU GPA and earn a grade of "C" or better in all required science and mathematics courses, and in ENGL 2000. A student who fails to earn a 2.0 Semester GPA or who earns grades of D/F in courses requiring "C" or higher is considered to not be making minimal progress.

This curriculum assumes students enter the university ready to take ENGL 1001, MATH 1550, & PHYS 1201, as demonstrated through placement tests. Students needing to complete preparatory courses (MATH 1022/1023, PHYS 1100) should plan to attend summer school to catch up with the curriculum.

NOTE: The courses to be added to semesters 3 and 4 are shown in highlighted text.

GEOLOGY

Critical Requirements

Semester 1: "C" or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.

Semester 2: "C" or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.

Semester 3: "C" or better in BIOL 1201 and MATH 1550: Admission to the College; 2.0 Cumulative, LSU and Semester GPA.

Semester 4: "C" or better in GEOL 2061/2081 and PHYS 1201/2110; 2.0 Cumulative, LSU and Semester GPA.

Semester 5: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

Total Semester Hours: 15

Semester 2

CRITICAL: "C" or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.

- CHEM 1202 General Chemistry (3)
- CHEM 1212 General Chemistry Laboratory (2)
- GEOL 1003 General Geology: Historical (3)
- GEOL 1602 Historical Geology Laboratory (1)
- MATH 1552 Analytic Geometry and Calculus I (5)

Total Semester Hours: 16

Semester 3

CRITICAL: "C" or better in BIOL 1201 and MATH 1550; Admission to the College; 2.0 Cumulative, LSU and Semester GPA.

- BIOL 1202 Biology for Science Majors II (3)
- PHYS 1201 General Physics for Physics Majors (4) or PHYS 2110 Particle Mechanics (3)
- PHYS 1208 General Physics Laboratory for Physics Majors (1) or
- PHYS 2108 Introductory Physics Laboratory (1)
- General Education course – Arts (3)
- First course in Foreign Language Sequence (4)

Total Semester Hours: 15-14

Semester 4

CRITICAL: "C" or better in GEOL 2061/2081 and PHYS 1201/2110; 2.0 Cumulative, LSU and Semester GPA.

- ENGL 2000 English Composition (3)
- GEOL 2061 History of the Biosphere (4)
- GEOL 2081 Mineralogy (4)
- PHYS 1202 General Physics for Physics Majors (4) or PHYS 2113 Electromagnetism (3) or
- PHYS 2002 General Physics (3)
- PHYS 1209 General Physics Laboratory for Physics Majors (1) or PHYS 2109 General Physics Laboratory (1)

Total Semester Hours: 16-15

Semester 5

CRITICAL: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

- GEOL 3032 Sedimentology and Depositional Environments (4)
- GEOL 3041 Igneous and Metamorphic Petrology (4)
- General Education course – Humanities (ENGL/HNRS 2000-level) (3)
- General Education course – Social Sciences (3)

Total Semester Hours: 14

Semester 6

CRITICAL: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

- GEOL 3071 Structural Geology (4)
- General Education course – Social Sciences (2000-level) (3)
- General Education course – Humanities (3)
- Approved Elective (6)

Total Semester Hours: 16

Summer Session: Geology Field Camp

- GEOL 3666 Field Geology (6)

Total Semester Hours: 6

Semester 8

CRITICAL: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

- GEOL 4000-level Courses (6)
- Approved Electives (6)

Total Semester Hours: 12

Semester 9

CRITICAL: "C" or better in GEOL 4000-level Courses (6)

Total Semester Hours: 10-12

120 Total Semester hours
Changes in Environmental Geology Curriculum

Justification:

Changes to the BS ENVIRONMENTAL GEOLOGY curriculum are needed to replace Physics courses (PHYS 2101 and PHYS 2102 and prerequisite PHYS 1100), which will no longer be taught, with the new three course sequence that the Physics Department has created to replace them. The new sequence is PHYS 2110, 2112 and 2113. Our department has decided to require students to take one of following two options of physics courses for the BS degree in Environmental Geology: 1) the new three-course sequence (PHYS 2110, PHYS 2112 and PHYS 2113); or 2) the existing two-course sequence of PHYS 1201 and PHYS 1202 (Physics for Physics majors). PHYS 2110 is a prerequisite for PHYS 2112 and PHYS 2113 but the latter two courses can be taken in any order.

These changes to the BS ENVIRONMENTAL GEOLOGY curriculum are achieved by a) removing PHYS 2101, PHYS 2102 and PHYS 2002; and b) adding PHYS 2110, PHYS 2112 and PHYS 2113. The Physics Department has agreed to our request that students in the Geology and Geophysics Department can continue to take the existing two-course sequence of PHYS 1201 and PHYS 1202 (Physics for Physics majors) as is currently the case.

The total number of hours for the recommended path remains to be 120 hrs.

The semester 4 Critical Requirement is revised so that PHYS 2101 is replaced by PHYS 2110.

The summary of changes proposed for the BS ENVIRONMENTAL GEOLOGY degree requirements is shown below.

Semester 3: delete PHYS 1201; add PHYS 2110
Semester 4: delete PHYS 2102 and PHYS 2002; add PHYS 2112
Semester 5: add PHYS 2113
When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement. Include course rubric, number, and credit hours when curricula differ from the default values. Indicate the curriculum semester for all General Education courses.

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<td>General Education analytical reasoning course (from mathematics department)</td>
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<td>(x) 1&lt;sup&gt;st&lt;/sup&gt; (5&lt;sup&gt;th&lt;/sup&gt;) (x) 2&lt;sup&gt;nd&lt;/sup&gt; (6&lt;sup&gt;th&lt;/sup&gt;) (x) 3&lt;sup&gt;rd&lt;/sup&gt; (7&lt;sup&gt;th&lt;/sup&gt;) (x) 4&lt;sup&gt;th&lt;/sup&gt; (8&lt;sup&gt;th&lt;/sup&gt;)</td>
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<tr>
<td>Natural Sciences (9 hrs.)</td>
<td>General Education natural science course sequence</td>
<td>6</td>
<td>(x) 1&lt;sup&gt;st&lt;/sup&gt; (5&lt;sup&gt;th&lt;/sup&gt;) (x) 2&lt;sup&gt;nd&lt;/sup&gt; (5&lt;sup&gt;th&lt;/sup&gt;) (x) 3&lt;sup&gt;rd&lt;/sup&gt; (7&lt;sup&gt;th&lt;/sup&gt;) (x) 4&lt;sup&gt;th&lt;/sup&gt; (8&lt;sup&gt;th&lt;/sup&gt;)</td>
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<td></td>
<td>General Education natural science course</td>
<td>3</td>
<td>(x) 1&lt;sup&gt;st&lt;/sup&gt; (5&lt;sup&gt;th&lt;/sup&gt;) (x) 2&lt;sup&gt;nd&lt;/sup&gt; (5&lt;sup&gt;th&lt;/sup&gt;) (x) 3&lt;sup&gt;rd&lt;/sup&gt; (7&lt;sup&gt;th&lt;/sup&gt;) (x) 4&lt;sup&gt;th&lt;/sup&gt; (8&lt;sup&gt;th&lt;/sup&gt;)</td>
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<tr>
<td>Social Sciences (6 hrs.)</td>
<td>General Education social science course (2000-level)</td>
<td>3</td>
<td>(x) 1&lt;sup&gt;st&lt;/sup&gt; (5&lt;sup&gt;th&lt;/sup&gt;) (x) 2&lt;sup&gt;nd&lt;/sup&gt; (6&lt;sup&gt;th&lt;/sup&gt;) (x) 3&lt;sup&gt;rd&lt;/sup&gt; (7&lt;sup&gt;th&lt;/sup&gt;) (x) 4&lt;sup&gt;th&lt;/sup&gt; (8&lt;sup&gt;th&lt;/sup&gt;)</td>
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</tbody>
</table>
All GEOLOGY students follow the same basic curriculum during the first five semesters of study. Laboratory and field studies are integrated into the curriculum at all levels and include a six-week summer field geology course at the department’s permanent field camp in the Colorado Front Range.

SCHOLASTIC REQUIREMENTS: Students must maintain a 2.0 Cumulative and LSU GPA and earn a grade of "C" or better in all required science and mathematics courses, and in ENGL 2000. A student who fails to earn a 2.0 Semester GPA or who earns grades of D/F in courses requiring "C" or higher is considered to not be making minimal progress.

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NOTE: The 3 courses to be deleted from semesters 3 and 4 are shown in strikeout text.

ENVIRONMENTAL GEOLOGY

Critical Requirements
Semester 1: “C” or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.
Semester 2: “C” or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.
Semester 3: “C” or better in BIOL 1201 and MATH 1550; Admission to the College; 2.0 Cumulative, LSU and Semester GPA.
Semester 4: “C” or better in GEOL 2061/2081 and PHYS 1201/2101; 2.0 Cumulative, LSU and Semester GPA.
Semester 5: “C” or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.

- CHEM 1201 General Chemistry I (3)
- ENGL 1001 English Composition (3)
- GEOL 1001 General Geology: Physical (3)
- GEOL 1601 Physical Geology Laboratory (1)
- MATH 1550 Analytic Geometry and Calculus I (5)

Total Semester Hours: 15

Semester 2
CRITICAL: “C” or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.

- CHEM 1202 General Chemistry (3)
- CHEM 1212 General Chemistry Laboratory (2)
- GEOL 1003 General Geology: Historical (3)
- GEOL 1602 Historical Geology Laboratory (1)
- MATH 1552 Analytic Geometry and Calculus IV (4)
- BIOL 1201 Biology for Science Majors I (3)

Total Semester Hours: 16

Semester 3
CRITICAL: “C” or better in BIOL 1201 and MATH 1550; Admission to the College; 2.0 Cumulative, LSU and Semester GPA.

- BIOL 1202 Biology for Science Majors II (3)
- PHYS 1201 General Physics for Physics Majors (4) or PHYS 2101-General Physics for Technical Students (3)
- PHYS 1202 General Physics Laboratory for Physics Majors (1) or PHYS 2108 Introductory Physics Laboratory (1)
- General Education course – Social Sciences (3)
- First course in Foreign Language Sequence (4)

Total Semester Hours: 15-14

Semester 4
CRITICAL: “C” or better in GEOL 2061/2081 and PHYS 1201/2101; 2.0 Cumulative, LSU and Semester GPA.

- ENGL 2000 English Composition (3)
- GEOL 2061 History of the Biosphere (4)
- GEOL 2081 Mineralogy (4)
- PHYS 1202 General Physics for Physics Majors (4) or PHYS 2102 General Physics for Technical Students (3)
- PHYS 2002 General Physics (3)
- PHYS 1209 General Physics Laboratory for Physics Majors (1) or PHYS 2109 General Physics Laboratory (1)

Total Semester Hours: 16-15

Semester 5
CRITICAL: “C” or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

- GEOL 3032 Sedimentology and Depositional Environments (4)
- GEOL 3041 Igneous and Metamorphic Petrology (4)
- General Education course – Humanities (ENGL/HNRS 2000-level) (3)
- Approved Elective (3) ²

Total Semester Hours: 14

Semester 6

- GEOL 3071 Structural Geology (4)
- General Education course – Social Sciences (2000-level) (3)
- General Education course – Humanities (3)
- Approved Elective (3)²

Total Semester Hours: 13

Summer Session: Geology Field Camp
- GEOL 3666 Field Geology (6)

Total Semester Hours: 6

Semester 7

- GEOL 4182 Physical Hydrogeology (3)
- Area of Concentration Course (6) ¹
- Approved Electives (6)

Total Semester Hours: 15

Semester 8

- Area of Concentration Course (3) ¹
- Approved Electives (4-6) ²
- General Education course - Arts (3)

Total Semester Hours: 10-12

120 Total Semester hours

¹ Area of concentration courses: Nine hours of geology electives that must be chosen from GEOL 4023, GEOL 4043, GEOL 4062, GEOL 4081, GEOL 4084, GEOL 4085 and GEOL 4164, of which three hours must be chosen from GEOL 4043, GEOL 4062, GEOL 4084 and GEOL 4085.

² The following courses are useful free electives in environmental geology: GEOL 4165, GEOG 4023, GEOG 4041, GEOG 4042, GEOG 4046, GEOG 4047, GEOG 4048, GEOG 4070, GEOG 4083, CHEM 4150, OCS 3103, OCS 4040, ENVS 4xxxx, RNR 4025 and RNR 4900.
Proposed
All GEOLOGY students follow the same basic curriculum during the first five semesters of study. Laboratory and field studies are integrated into the curriculum at all levels and include a six-week summer field geology course at the department's permanent field camp in the Colorado Front Range.

SCHOLASTIC REQUIREMENTS. Students must maintain a 2.0 Cumulative and LSU GPA and earn a grade of "C" or better in all required science and mathematics courses, and in ENGL 2000. A student who fails to earn a 2.0 Semester GPA or who earns grades of D/F in courses requiring "C" or higher is considered to not be making minimal progress.

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NOTE: The 3 new courses to be added to semesters 3, 4 and 5 are shown in highlighted print.

ENVIRONMENTAL GEOLOGY

Critical Requirements
Semester 1: “C” or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.
Semester 2: “C” or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.
Semester 3: “C” or better in BIOL 1201 and MATH 1550; Admission to the College; 2.0 Cumulative, LSU and Semester GPA.
Semester 4: “C” or better in GEOL 2061/2081 and PHYS 1201/2110; 2.0 Cumulative, LSU and Semester GPA.
Semester 5: “C” or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.
- CHEM 1201 General Chemistry I (3)
- ENGL 1001 English Composition (3)
- GEOL 1001 General Geology Physical (3)
- GEOL 1001 Physical Geology Laboratory (1)
- MATH 1550 Analytic Geometry and Calculus I (5)

Total Semester Hours: 15

Semester 2
CRITICAL: “C” or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.
- CHEM 1202 General Chemistry (3)
- CHEM 1212 General Chemistry Laboratory (2)
- GEOL 1003 General Geology Historical (3)
- GEOL 1601 Physical Geology Laboratory (1)
- MATH 1552 Analytic Geometry and Calculus II (6)
- BIOL 1201 Biology for Science Majors I (3)

Total Semester Hours: 16

Semester 3
CRITICAL: “C” or better in BIOL 1201 and MATH 1550; Admission to the College; 2.0 Cumulative, LSU and Semester GPA.
- BIOL 1202 Biology for Science Majors II (3)
- PHYS 1201 General Physics for Physics Majors (4) or PHYS 2110 Particle Mechanics (3)
- PHYS 2108 Introductory Physics Laboratory (1)
- General Education course – Social Sciences (3)
- First course in Foreign Language Sequence (4)

Total Semester Hours: 15-14

Semester 4
CRITICAL: “C” or better in GEOL 2061/2081 and PHYS 1201/2110; 2.0 Cumulative, LSU and Semester GPA.
- ENGL 2000 English Composition (3)
- GEOL 2061 History of the Biosphere (4)
- GEOL 2081 Mineralogy (4)
- PHYS 1202 General Physics for Physics Majors (4) or PHYS 2112 Thermo and Waves (3)
- PHYS 1209 General Physics Laboratory for Physics Majors (1) or PHYS 2109 General Physics Laboratory (1)

Total Semester Hours: 16-15

Semester 5
CRITICAL: “C” or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.
- GEOL 3032 Sedimentology and Depositional Environments (4)
- GEOL 3041 Igneous and Metamorphic Petrology (4)
- PHYS 2113 Electromagnetism (3) or Approved Elective (3)
- General Education course – Humanities (ENGL/HNRS 2000-level) (3)

Total Semester Hours: 14

Semester 6
Summer Session: Geology Field Camp
- GEOL 3666 Field Geology (6)

Total Semester Hours: 6

Semester 7
Area of Concentration Course (6)
- Approved Electives (6)

Total Semester Hours: 15

Semester 8
Area of Concentration Course (3) 1
- Approved Electives (4-6) 2
- General Education course - Arts (3)

Total Semester Hours: 10-12

120 Total Semester hours

1 Area of concentration courses: Nine hours of geology electives that must be chosen from GEOL 4023, GEOL 4043, GEOL 4062, GEOL 4081, GEOL 4084, GEOL 4085 and GEOL 4164, of which three hours must be chosen from GEOL 4043, GEOL 4062, GEOL 4084 and GEOL 4085.

2 The following courses are useful free electives in environmental geology: GEOL 4165, GEOG 4023, GEOG 4041, GEOG 4042, GEOG 4046, GEOG 4047, GEOG 4048, GEOG 4070, GEOG 4083, CHEM 4150, OCS 3103, OCS 4905, ENVS 4xxx, RNR 4025 and RNR 4900.

3 Students may take either the two-course Physics sequence (PHYS 1201 and PHYS 1202) or the three-course Physics sequence (PHYS 2110, 2112 and 2113).
Changes in GEOPHYSICS Curriculum

Justification:

Changes to the BS GEOPHYSICS curriculum are needed to replace Physics courses (PHYS 2101 and PHYS 2102 and prerequisite PHYS 1100), which will no longer be taught, with new courses that the Physics Department has created to replace them. The new three-course sequence is PHYS 2110, 2112 and 2113. Our department has decided to require students to take one of following two options of physics courses for the BS degree in Geophysics: 1) the new three-course sequence (PHYS 2110, PHYS 2112 and PHYS 2113), or 2) the existing two-course sequence of PHYS 1201 and PHYS 1202 (Physics for Physics majors). PHYS 2110 is a prerequisite for PHYS 2112 and PHYS 2113 but the latter two courses can be taken in any order. Our department has decided to eliminate PHYS 2203 since these topics are not needed in Geophysics program.

The Physics Department has agreed to our request that students in the Geology and Geophysics Department can continue to take the two-course sequence (PHYS 1201 and PHYS 1202). PHYS 2110 is a prerequisite for PHYS 2112 and PHYS 2113 but the latter two courses can be taken in any order.

These changes to the BS GEOPHYSICS curriculum are achieved by a) removing PHYS 2101 and PHYS 2102, and b) adding PHYS 2110, PHYS 2112 and PHYS 2113.

The total number of hours for the recommended path remains to be 120 hrs.

The semester 4 Critical Requirement is revised so that PHYS 2101 is replaced by PHYS 2110.

The summary of changes proposed for the BS GEOPHYSICS degree requirements is shown below.

Semester 3: delete PHYS 2101; add PHYS 2110
Semester 4: delete PHYS 2102; add PHYS 2112
Semester 5: delete PHYS 2203; add PHYS 2113
GENERAL EDUCATION REQUIREMENTS

When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement.

Include course rubric, number, and credit hours when curricula differ from the default values.

Indicate the curriculum semester for all General Education courses.

<table>
<thead>
<tr>
<th>General Education Requirement</th>
<th>Course(s)</th>
<th>Credit Hours</th>
<th>Curriculum Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition (6 hrs.)</td>
<td>ENGL 1001 or 1004</td>
<td>3</td>
<td>(1) 1st (5th)</td>
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<td>(2) 2nd (6th)</td>
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<td>(3) 3rd (7th)</td>
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<td>(4) 4th (8th)</td>
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<td>ENGL 2000</td>
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<td>(4) 4th (8th)</td>
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<td>General Education analytical reasoning course (from mathematics department)</td>
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<td>(At least 3 hours credit must be from</td>
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<td>(2) 2nd (6th)</td>
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<td>a MATH course.)</td>
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<td>General Education analytical reasoning course</td>
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<td>(1) 1st (5th)</td>
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<td>(4) 4th (8th)</td>
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<td>Arts (3 hrs.)</td>
<td>General Education arts course</td>
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<td>Humanities (9 hrs.)</td>
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<tr>
<td>Natural Sciences (9 hrs.)</td>
<td>General Education natural science course sequence</td>
<td>6</td>
<td>(1) 1st (5th)</td>
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<td>(If 2 course sequence is taken in the</td>
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<td>(2) 2nd (6th)</td>
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<td>physical sciences, the additional 3</td>
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<td>(3) 3rd (7th)</td>
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<td>hour course must be from the life</td>
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<td>(4) 4th (8th)</td>
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<tr>
<td>sciences, and vice versa.)</td>
<td>General Education natural science course</td>
<td>3</td>
<td>(1) 1st (5th)</td>
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<td>(4) 4th (8th)</td>
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<tr>
<td>Social Sciences (6 hrs.)</td>
<td>General Education social science course</td>
<td>3</td>
<td>(1) 1st (5th)</td>
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<td>(At least three hours at the 2000-level)</td>
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<td>(2) 2nd (6th)</td>
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<td>(4) 4th (8th)</td>
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### Geophysics

**Critical Requirements**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Critical: &quot;C&quot; or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.</th>
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<tbody>
<tr>
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<td>• CHEM 1201 General Chemistry I (3)</td>
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<tr>
<td></td>
<td>• ENGL 1001 English Composition (3)</td>
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<tr>
<td></td>
<td>• GEOL 1001 General Geology: Physical (3)</td>
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<tr>
<td></td>
<td>• GEOL 1601 Physical Geology Laboratory (1)</td>
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<tr>
<td></td>
<td>• MATH 1550 Analytic Geometry and Calculus I (5)</td>
</tr>
<tr>
<td></td>
<td>Total Semester Hours: 15</td>
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<tr>
<td>Semester 2</td>
<td>Critical: &quot;C&quot; or better in CHEM 1201 and GEOL 1003; 2.0 Cumulative, LSU and Semester GPA.</td>
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<td>• CHEM 1202 General Chemistry (3)</td>
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<td>• CHEM 1212 General Chemistry Laboratory (2)</td>
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<td></td>
<td>• GEOL 1003 General Geology: Historical (3)</td>
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<td></td>
<td>• GEOL 1602 Historical Geology Laboratory (1)</td>
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<tr>
<td></td>
<td>• MATH 1552 Analytic Geometry and Calculus (4)</td>
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<tr>
<td></td>
<td>• BIOL 1201 Biology for Science Majors I (3)</td>
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<td>Total Semester Hours: 16</td>
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<tr>
<td>Semester 3</td>
<td>Critical: &quot;C&quot; or better in BIOL 1201 and MATH 1550; Admission to the College; 2.0 Cumulative, LSU and Semester GPA.</td>
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<tr>
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<td>• MATH 2055 Elementary Differential Equations (3)</td>
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<td>• MATH 2090 Elementary Differential Equations and Linear Algebra (4)</td>
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<td>• PHYS 1201 General Physics for Physics Majors (4) or PHYS 2101 General Physics for Technical Majors (3)</td>
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<tr>
<td></td>
<td>• PHYS 1208 General Physics Laboratory for Physics Majors (1) or PHYS 2108 Introductory Physics Laboratory (1)</td>
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<tr>
<td></td>
<td>Total Semester Hours: 17</td>
</tr>
</tbody>
</table>

**Semester 4**

Critical: "C" or better in GEOL 2061/2081 and PHYS 1201/2101; 2.0 Cumulative, LSU and Semester GPA.

- ENGL 2000 English Composition (3)
- PHYS 1202 General Physics for Physics Majors (4) or PHYS 2102 General Physics for Technical Majors (3)
- PHYS 1209 General Physics Laboratory for Physics Majors (1) or PHYS 2109 General Physics Laboratory (1)
- GEOL 2061 History of the Biosphere (4)
- GEOL 2081 Mineralogy (4)

Total Semester Hours: 16-15

**Semester 5**

Critical: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.

- PHYS 2203 Introductory Modern Physics (3)
- GEOL 3041 Igneous and Metamorphic Petrology (4)
- GEOL 3032 Sedimentology and Depositional Environments (4)
- General Education course - Social Sciences (2000-level) (3)
- General Education course - Humanities (ENGUHNRS 2000-level) (3)

Total Semester Hours: 17

**Semester 6**

- GEOL 3071 Structural Geology (4)
- PETE 3036 Well Logging (3)
- General Education course - Arts (3)
- General Education course - Humanities (3)
- Approved Elective (0-3)

Total Semester Hours: 13-16

**Semester 7**

Summer Session: Geology Field Camp

- GEOL 3666 Field Geology (6)

Total Semester Hours: 6

**Semester 8**

- GEOL 4066 Plate Tectonics (3)
- GEOL 4000-level course (3)
- Approved Electives (3)

Total Semester Hours: 12

**Semester 9**

- Area of Concentration Course (3)
- Approved Electives (6)

Total Semester Hours: 9

120 Total Semester hours

1 Area of concentration courses: Two courses from GEOL 4062 or GEOL 4068.

2 A useful free elective is GEOG 4048.
Proposed
All GEOLOGY students follow the same basic curriculum during the first five semesters of study. Laboratory and field studies are integrated into the curriculum at all levels and include a six-week summer field geology course at the department's permanent field camp in the Colorado Front Range.

SCHOLASTIC REQUIREMENTS. Students must maintain a 2.0 Cumulative and LSU GPA and earn a grade of "C" or better in all required science and mathematics courses, and in ENGL 2000. A student who fails to earn a 2.0 Semester GPA or who earns grades of D/F in courses requiring "C" or higher is considered to not be making minimal progress.

This curriculum assumes students enter the university ready to take ENGL 1001, MATH 1550, & PHYS 1201, as demonstrated through placement tests. Students needing to complete preparatory courses (MATH 1022/1023, PHYS 1100) should plan to attend summer school to catch up with the curriculum.

NOTE: The Proposed recommended path for the BS in GEOPHYSICS curriculum is shown below. The 3 new courses to be added to semesters 3, 4 and 5 are shown in highlighted text.

GEOPHYSICS Critical Requirements
Semester 1: "C" or better in ENGL 1001 and GEOL 1001; 2.0 Cumulative, LSU and Semester GPA.
Semester 2: "C" or better in CHEM 1201 and GEOL 1003: 2.0 Cumulative, LSU and Semester GPA.
Semester 3: "C" or better in BIOL 1201 and MATH 1550: Admission to the College; 2.0 Cumulative, LSU and Semester GPA.
Semester 4: "C" or better in GEOL2061/2081 and PHYS 1201/2110; 2.0 Cumulative, LSU and Semester GPA.
Semester 5: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.
Semester 6: "C" or better in GEOL 3071 Structural Geology (4); PHYS 2108 Introductory Physics Laboratory (3)
Semester 7: "C" or better in GEOL 4066 Plate Tectonics (3); GEOL 4000-level course (3)

Total Semester Hours: 16-15

Semester 4
CRITICAL: "C" or better in GEOL 2061/2081 and PHYS 1201/2110; 2.0 Cumulative, LSU and Semester GPA.
- ENGL 2000 English Composition (3)
- PHYS 1202 General Physics for Physics Majors (4) or PHYS 2112 Thermo and waves (3)
- PHYS 1209 General Physics Laboratory for Physics Majors (1) or PHYS 2109 General Physics Laboratory (1)
- GEOL 2061 History of the Biosphere (4)
- GEOL 2081 Mineralogy (4)

Total Semester Hours: 16-15

Semester 5
CRITICAL: "C" or better in GEOL 3032/3041; 2.0 Cumulative, LSU and Semester GPA.
- PHYS 2113 Electromagnetism (3) or Approved Electives (3)
- GEOL 3041 Igneous and Metamorphic Petrology (4)
- GEOL 3032 Sedimentology and Depositional Environments (4)
- General Education course – Social Sciences (2000-level) (3)
- General Education course – Humanities (ENGL/HNRS 2000-level) (3)

Total Semester Hours: 17

Semester 6
- GEOL 3071 Structural Geology (4)
- PETE 3036 Well Logging (3)
- General Education course – Arts (3)
- General Education course – Humanities (3)
- Approved Electives (0-2)

Total Semester Hours: 13-15

Semester 7
Summer Session: Geology Field Camp
  - GEOL 3666 Field Geology (6)

Total Semester Hours: 6

Semester 8
- GEOL 4066 Plate Tectonics (3)
- GEOL 4000-level course (3)
- Area of Concentration Course (3)
- Approved Electives (3)

Total Semester Hours: 12

Semester 9
- Area of Concentration Course (3)
- Approved Electives (6)

Total Semester Hours: 9

120 Total Semester hours

1 Students may take either the two-course Physics sequence (PHYS 1201 and PHYS1202) or the three-course Physics sequence (PHYS 2110, 2112 and 2113).
2 A useful free elective is GEOG 4048.
3 Area of concentration courses: Choose either GEOL 4052 or GEOL 4068.
We approve of your request to add PHYS 2110, 2112, 2113 to the list of physics courses for your Geology degrees.

Dr. Dana A. Browne  
Professor and Associate Chair  
Dept. of Physics and Astronomy  
202 Nicholson Hall  
Louisiana State University  
Baton Rouge, LA 70803-4001

On 1/9/2014 9:34 PM, Philip J Bart wrote:  
> Dear Dana,  
> I looked over our emails from the past several months and I don't see  
> that I've alerted you about the changes that the faculty of Geology  
> and Geophysics voted concerning Physics requirements.  
> I need a letter from you indicating that you agree to these changes.  
> On 11/26/2013, the Geology and Geophysics faculty voted for changes in  
> Physics requirements for our three degree programs.  
> Here is a summary of the changes the faculty approved.  
> For all three degrees, Option 1 is one that is currently allowed. Please be aware  
> that the G&G faculty voted to no longer require PHYS 2203 (modern  
> Physics) for the BS degree in Geophysics.  
>  
> 1. BS in Environmental Geology  
> Option 1: PHYS1201 and PHYS1202 (currently allowed)  
> or  
> Option 2: PHYS2110, PHYS2112 and PHYS2113 (new option voted by G&G)  
>  
> 2. BS in Geology  
> Option 1: PHYS 1201 and PHYS 1202 (currently allowed)  
> or  
> Option 2: PHYS 1201 and PHYS 2002 (also currently allowed)  
> or  
> Option 3: PHYS 2110 and PHYS 2112 or PHYS 2113 (new option voted by  
> G&G)  
>  
> 3. Geophysics  
> Option 1: PHYS1201 and PHYS1202 (currently allowed)  
> or  
> Option 2: PHYS2110, PHYS2112 and PHYS2113 (new option voted by G&G)  
> Can you address reply email to Carol Wicks confirming that you agree  
> to the changes voted by the Geology and Geophysics faculty?  
> If your schedule permits, could you send the email asap on Friday morning?  
> Kind regards,  
> Phil Bart  
> 
>
REQUEST FOR ADDING, CHANGING, SUSPENDING OR DROPPING AN UNDERGRADUATE CURRICULUM

Department: Civil and Environmental Engineering
College: Engineering
Name of Curriculum/Major: Civil Engineering
Type of Degree: BS
Date: 02/14/14

Has this change been discussed with and approved by all departments/colleges affected? Yes (X) No ( ) N/A ( )

ATTACH JUSTIFICATION for all actions: Use separate sheet.
ATTACH RESPONSE from any departments affected [i.e. any department whose course(s) are to be added.]
ATTACH FORM D ADDENDUM for all new curricula or changes involving General Education courses.

ACTION (check appropriate box):

( ) ADDING: Show the entire new curriculum by year (freshman, sophomore, etc.) using catalog format. Use plain sheets and attach.

( ) CHANGING: On a separate sheet of paper, include the current curriculum outline (all four years) which is to be changed in the left column and the proposed changes in the right column. In proposed column, use strikeout and bold to identify deletions and additions. Explain all changes adequately on attachment.

( ) SUSPENDING: Provide an adequate explanation for suspending the curriculum on plain sheets and attach.

( ) DROPPING: Provide an adequate explanation for dropping the curriculum on plain sheets and attach.

CURRICULUM

<table>
<thead>
<tr>
<th>PRESENT</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total semester hours in current curriculum: 120</td>
<td>Total semester hours in proposed curriculum: 120</td>
</tr>
</tbody>
</table>

APPROVALS:

Department Faculty Approval Date: 11/15/2013
Department Chair’s Signature: [Signature]
Date: 2/10/14

College Faculty Approval Date: 2/12/14
College Dean’s Signature: [Signature]
Date: 2/14/14

Chair, FS C & C Committee: [Signature]
Date: 2/13/14
Academic Affairs Approval: [Signature]
Date: 3/15/14
Justification for Curriculum Changes

Recent changes to physics and prerequisites of CE 3300 were approved. Additional minor changes were made to balance the course load over the 8 semesters and to ensure that CE students meet the prerequisites before arriving at the capstone project courses. The changes involve moving courses between semesters as follows:

1. Move GEN ED Course ART from semester 2 to semester 3
2. Total hours in semester 2 = 14
3. Total hours in semester 3 = 16
4. Move CE 3500 from semester 4 to semester 5
5. Move EVEG 3200 from semester 5 to semester 6
6. Move CE 3600 from semester 5 to semester 6
7. Move EE 2950 from semester 5 to semester 4
8. Move CE 3300 from semester 6 to semester 5
9. Total hours in semester 5 = 14
10. Move GEN ED Social Sciences from semester 6 to semester 8
11. Total hours in semester 8 = 15

The changes will result in the following yearly distribution of hours:

Year 1: 29
Year 2: 32
Year 3: 30
Year 3: 29
Total = 120 CR
GENERAL EDUCATION REQUIREMENTS

When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement. Include course rubric, number, and credit hours when curricula differ from the default values. Indicate the curriculum year for all General Education courses.

<table>
<thead>
<tr>
<th>General Education Requirement</th>
<th>Course(s)</th>
<th>Credit Hours</th>
<th>Curriculum Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition (6 hrs.)</td>
<td>ENGL 1001 or 1004</td>
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<td>(X) 1st</td>
</tr>
<tr>
<td></td>
<td>ENGL 2000</td>
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<td>( ) 3rd</td>
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<td></td>
<td></td>
<td></td>
<td>(X) 4th</td>
</tr>
<tr>
<td>Analytical Reasoning (6 hrs.)</td>
<td>General Education analytical reasoning course (from mathematics department) MATH 1550</td>
<td>3</td>
<td>(X) 1st</td>
</tr>
<tr>
<td>(At least 3 hours credit must be from a MATH course.)</td>
<td>General Education analytical reasoning course MATH 1552</td>
<td>3</td>
<td>(X) 2nd</td>
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<td></td>
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<td>( ) 3rd</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(X) 4th</td>
</tr>
<tr>
<td>Arts (3 hrs.)</td>
<td>General Education arts course</td>
<td>3</td>
<td>( ) 1st</td>
</tr>
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<td></td>
<td></td>
<td>(X) 2nd</td>
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<tr>
<td></td>
<td></td>
<td>( ) 3rd</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>( ) 4th</td>
<td></td>
</tr>
<tr>
<td>Humanities (9 hrs.)</td>
<td>General Education humanities course</td>
<td>3</td>
<td>( ) 1st</td>
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<td></td>
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<td>( ) 2nd</td>
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<td>(X) 4th</td>
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<td>General Education humanities course</td>
<td>3</td>
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<td></td>
<td></td>
<td>(X) 4th</td>
<td></td>
</tr>
<tr>
<td>Natural Sciences (9 hrs.)</td>
<td>General Education natural science course sequence PHYS 2110, 2112</td>
<td>6</td>
<td>(X) 1st</td>
</tr>
<tr>
<td>(If 2 course sequence is taken in the physical sciences, the additional 3 hour course must be from the life sciences, and vice versa.)</td>
<td>General Education natural science course Life Science Elective</td>
<td>3</td>
<td>(X) 2nd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( ) 3rd</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>( ) 4th</td>
<td></td>
</tr>
<tr>
<td>Social Sciences (6 hrs.)</td>
<td>General Education social science course</td>
<td>3</td>
<td>( ) 1st</td>
</tr>
<tr>
<td>(At least three hours at or above the 2000-level.)</td>
<td>General Education social science course (2000-level or above) ECON 2030</td>
<td>3</td>
<td>( ) 2nd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( ) 3rd</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(X) 4th</td>
<td></td>
</tr>
</tbody>
</table>
• General Education course - Natural Sciences (3)

**Total Semester Hours: 17**

**Semester 3**

• **CRITICAL:** CHEM 1201.
• CE 2450 Statics (3)
• MATH 2057 Multidimensional Calculus (3)
• EXST 2201 Introduction to Statistical Analysis (4)
• PHYS 2112 Fluids, Thermodynamics, Waves, and Modern Physics (3)

**Total Semester Hours: 13**

**Semester 4**

• **CRITICAL:** "C" or better in MATH 1550.
• CE 2200 Fluid Mechanics (3)
• CE 2460 Dynamics and Vibrations (3)
• CE 3400 Mechanics of Materials (3)
• CE 3700 Engineering Materials Laboratory (1)
• CE 3500 Plane Surveying and Measurements (3)
• MATH 2065 Elementary Differential Equations (3)

**Total Semester Hours: 16**

**Semester 5**

• **CRITICAL:** "C" or better in PHYS 2110.
• CE 2250 Fluid Mechanics Laboratory (1)
• EVEG 3200 Water Resources Engineering (3)
Civil Engineering

CRITICAL REQUIREMENTS

SEMESTER 1: MATH 1021.
SEMESTER 2: MATH 1022 or MATH 1023.
SEMESTER 3: CHEM 1201.
SEMESTER 4: "C" or better in MATH 1550.
SEMESTER 5: "C" or better in PHYS 2110.

Civil Engineering majors must earn a grade of "C" or better in CHEM 1202, PHYS 2110, PHYS 2111, MATH 1550, MATH 1552, MATH 2057, CE 2200, CE 2450, CE 2460, and CE 3400 before registering for any subsequent courses that require the above as prerequisites.

Semester 1

- CRITICAL: MATH 1021.
- CHEM 1201 General Chemistry I (3)
- ENGL 1001 English Composition (3)
- GEOL 1001 General Geology: Physical (3)
- MATH 1550 Analytic Geometry and Calculus I (5)
- Basic Science Lab Elective (1)

Total Semester Hours: 15

Semester 2

- CRITICAL: MATH 1022 or MATH 1023.
- CE 2700 Introduction to Civil Engineering Practice (1)
- CHEM 1202 General Chemistry (3)
- MATH 1552 Analytic Geometry and Calculus II (4)
- PHYS 2110 Particle Mechanics (3)
- General Education course—Arts (3)
• CE 3410 Mechanics of Materials Laboratory (1)
• CE 3415 Structural Analysis I (3)
• CE 3600 Principles of Highway and Traffic Engineering (3)
• ENGL 2000 English Composition (3)
• EE 2950 Comprehensive Electrical Engineering (3)

Total Semester Hours: 17

Semester 6

• CE 3300 Geotechnical Engineering I (3)
• CE 3350 Geotechnical Engineering Laboratory I (1)
• ECON 2030 Economic Principles (3)
• CE 4410 Principles of Reinforced Concrete (3)
• EVEG 3110 Water and Wastewater Treatment (3)
• General Education course - Social Sciences (3)

Total Semester Hours: 16

Semester 7

• CE 4200 Hydrology (3)
• CE 4750 Professional Issues and Concept Design in Civil Engineering (2)
• CE Analysis Elective or Design Elective (3)
• General Education course - Humanities (6)

Total Semester Hours: 14

Semester 8

• CE Design Elective (3)
• CE Project Elective (3)
• General Education course - Humanities (3)
• Technical Elective or ROTC (3)
Total Semester Hours: 12

120 Total Sem. Hrs.
Civil Engineering

CRITICAL REQUIREMENTS

SEMESTER 1: MATH 1021.
SEMESTER 2: MATH 1022 or MATH 1023.
SEMESTER 3: CHEM 1201.
SEMESTER 4: "C" or better in MATH 1550.
SEMESTER 5: "C" or better in PHYS 2110.

Civil Engineering majors must earn a grade of "C" or better in CHEM 1202, PHYS 2110, PHYS 2112, MATH 1550, MATH 1552, MATH 2057, CE 2200, CE 2450, CE 2460, and CE 3400 before registering for any subsequent courses that require the above as prerequisites.

Semester 1

- CRITICAL: MATH 1021.
- CHEM 1201 General Chemistry I (3)
- ENGL 1001 English Composition (3)
- GEOL 1001 General Geology: Physical (3)
- MATH 1550 Analytic Geometry and Calculus I (5)
- Basic Science Lab Elective (1)

Total Semester Hours: 15

Semester 2

- CRITICAL: MATH 1022 or MATH 1023.
- CE 2700 Introduction to Civil Engineering Practice (1)
- CHEM 1202 General Chemistry (3)
- MATH 1552 Analytic Geometry and Calculus II (4)
- PHYS 2110 Particle Mechanics (3)
- General Education course - Natural Sciences (3)
Total Semester Hours: 14

Semester 3

- **CRITICAL**: CHEM 1201.
- CE 2450 Statics (3)
- MATH 2057 Multidimensional Calculus (3)
- EXST 2201 Introduction to Statistical Analysis (4)
- PHYS 2112 Fluids, Thermodynamics, Waves, and Modern Physics (3)
- General Education course - Arts (3)

Total Semester Hours: 16

Semester 4

- **CRITICAL**: "C" or better in MATH 1550.
- CE 2200 Fluid Mechanics (3)
- CE 2460 Dynamics and Vibrations (3)
- CE 3400 Mechanics of Materials (3)
- CE 3700 Engineering Materials Laboratory (1)
- MATH 2065 Elementary Differential Equations (3)
- EE 2950 Comprehensive Electrical Engineering (3)

Total Semester Hours: 16

Semester 5

- **CRITICAL**: "C" or better in PHYS 2110.
- CE 2250 Fluid Mechanics Laboratory (1)
- CE 3410 Mechanics of Materials Laboratory (1)
- CE 3415 Structural Analysis I (3)
• ENGL 2000 English Composition (3)
• CE 3500 Plane Surveying and Measurements (3)
• CE 3300 Geotechnical Engineering I (3)

Total Semester Hours: 14

Semester 6

• CE 3350 Geotechnical Engineering Laboratory I (1)
• ECON 2030 Economic Principles (3)
• CE 4410 Principles of Reinforced Concrete (3)
• EVEG 3110 Water and Wastewater Treatment (3)
• EVEG 3200 Water Resources Engineering (3)
• CE 3600 Principles of Highway and Traffic Engineering (3)

Total Semester Hours: 16

Semester 7

• CE 4200 Hydrology (3)
• CE 4750 Professional Issues and Concept Design in Civil Engineering (2)
• CE Analysis Elective or Design Elective (3)
• General Education course - Humanities (6)

Total Semester Hours: 14

Semester 8

• CE Design Elective (3)
• CE Project Elective (3)
• General Education course - Humanities (3)
• Technical Elective or ROTC (3)
• General Education course - Social Sciences (3)
Total Semester Hours: 15

120 Total Sem. Hrs.
Current

TOTAL HOURS = 120

CIVIL ENGINEERING

FLOWCHART LEGEND

Credit required
Credit or registration required
Co-registration required
General Education
See 2013-2014 General Catalog

3418 Patrick F Taylor Hall  Civil & Environmental Engineering Office
www.cee.lsu.edu

Grade of "C" or better required
Course taught in fall only

* Prereq: MATH 1552 & PHYS 2101

This flowchart represents an eight semester path to graduation. If working during the academic year, expect to spend more than four years to graduate.

www.cee.lsu.edu
Rev: 8/28/2013
Proposed
CIVIL ENGINEERING
2014-2015

TOTAL HOURS = 120

FALL | SPRING | FALL | SPRING | FALL | SPRING | FALL | SPRING
1    | 2      | 3    | 4      | 5    | 6      | 7    | 8

- (3) CHEM 1201 Basic Chem
- (3) CHEM 1202 Basic Chem II
- (3) GEOL 1001 Gen Geology
- (1) Basic Science Lab Elective
- (3) MATH 1550 Calculus
- (3) MATH 1552 Calculus II
- (3) PHYS 1101 or 2112 Gen Phys I
- (1) Intro to CE

Credit required
Credit or registration required
Co-registration required
Gen Ed

This flowchart represents an eight semester path to graduation. If working during the academic year, expect to spend more than four years to graduate.

FLOWCHART LEGEND
- Credit required
- Critical Path

3418 Patrick F Taylor Hall Civil & Environmental Engineering Office
www.cee.lsu.edu

Rev 02/04/2014
REQUEST FOR ADDING, CHANGING, SUSPENDING OR DROPPING AN UNDERGRADUATE CURRICULUM

Department: Mechanical and Industrial Engineering

College: Engineering

Name of Curriculum/Major: Industrial Engineering

Date: 2/10/14

Type of Degree: BS

Has this change been discussed with and approved by all departments/colleges affected? Yes (X) No ( ) N/A ( )

ATTACH JUSTIFICATION for all actions: Use separate sheet.
ATTACH RESPONSE from any departments affected [i.e. any department whose course(s) are to be added.]
ATTACH FORM D ADDENDUM for all new curricula or changes involving General Education courses.

ACTION (check appropriate box):

( ) ADDING: The entire new curriculum, by semester, must be typed on plain sheets and attached to Form D. (See sample layout attached.)

( X ) CHANGING: Regardless if all semesters of a curriculum are to be changed or only parts, the present and proposed (eight-semester) recommended path should be attached on separate pages. On the Present recommended path, use strikeout and on the Proposed recommended path, highlight areas to identify deletions and additions. Do not use boldface to designate changes as boldface is reserved for critical requirements within the recommended path. Explain all changes adequately on attachment.

( ) SUSPENDING: Provide an adequate explanation for suspending the curriculum on plain sheets and attach.

( ) DROPPING: Provide an adequate explanation for dropping the curriculum on plain sheets and attach.

CURRICULUM

<table>
<thead>
<tr>
<th>PRESENT</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total semester hours in current curriculum:</td>
<td>125</td>
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</table>

APPROVALS:

Department Faculty Approval Date: 1/10/14

College Faculty Approval Date: 9/21/13

Department Chair's Signature: [Signature]

College Dean's Signature: [Signature]

Chair, FS C & C Committee: [Signature] (Date)

Academic Affairs Approval: [Signature] (Date)

College Contact: ____________________________

(Please print name.)

College Contact E-mail: _________________________
GENERAL EDUCATION REQUIREMENTS

When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement.

Include course rubric, number, and credit hours when curricula differ from the default values.

Indicate the curriculum semester for all General Education courses.

<table>
<thead>
<tr>
<th>General Education Requirement</th>
<th>Course(s)</th>
<th>Credit Hours</th>
<th>Curriculum Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition (6 hrs.)</td>
<td>ENGL 1001 or 1004</td>
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<td></td>
<td>ENGL 2000</td>
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<tr>
<td>Analytical Reasoning (6 hrs.)</td>
<td>General Education analytical reasoning course</td>
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<td></td>
<td>(from mathematics department) MATH 1550</td>
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<td>General Education analytical reasoning course</td>
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<td>MATH 1552</td>
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<td>Arts (3 hrs.)</td>
<td>General Education arts course</td>
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<td>Humanities (9 hrs.)</td>
<td>General Education humanities course</td>
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<td>CMST 1061 or 2060</td>
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<td>General Education humanities course</td>
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<td>ANY APPROVED GEN ED HUM COURSE</td>
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<td>CHEM 1201, 1202</td>
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<td>Social Sciences (6 hrs.)</td>
<td>General Education social science course</td>
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<td></td>
<td>ECON 2030</td>
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present

Industrial Engineering

CRITICAL REQUIREMENTS

SEMESTER 1: MATH 1021.
SEMESTER 2: MATH 1022 or MATH 1023
SEMESTER 3: CHEM 1201.
SEMESTER 4: "C" or better in MATH 1550
SEMESTER 5: "C" or better in PHYS 2110.

Industrial Engineering Electives • Choose from the list maintained in the department.

Students may optionally take three hours of advanced ROTC course work in place of one IE technical elective.

Semester 1

• CRITICAL: MATH 1021.
• CMST 1061 Fundamentals of Communication (3) or CMST 2060 Public Speaking (3) or ROTC (3)
• CHEM 1201 General Chemistry I (3)
• ENGL 1001 English Composition (3)
• IE 1002 Industrial Engineering Fundamentals (3)
• MATH 1550 Analytic Geometry and Calculus I (5)

Total Semester Hours: 17

Semester 2

• CRITICAL: MATH 1022 or MATH 1023
• CM 1020 Engineering Graphics for Mechanical Engineering (2)
- CHEM 1202 General Chemistry (3)
- IE 2060 Introduction to the Use of Computers (3)
- MATH 1552 Analytic Geometry and Calculus II (4)
- PHYS 2110 Particle Mechanics (3)
- PHYS 2108 Introductory Physics Laboratory (1)

Total Semester Hours: 16

Semester 3

- CRITICAL: CHEM 1201.
- ECON 2030 Economic Principles (3)
- MATH 2090 Elementary Differential Equations and Linear Algebra (4)
- PHYS 2112 Fluids, Thermodynamics, Waves, and Modern Physics (3)
- BIOL 1001 General Biology (3) or
- BIOL 1201 Biology for Science Majors I (3)
- EE 2950 Comprehensive Electrical Engineering (3)

Total Semester Hours: 16

Semester 4

- CRITICAL: "C" or better in MATH 1550
- CE 2450 Statics (3)
- CM 2141 Construction Planning and Scheduling (3)
- IE 2400 Methods and Systems Engineering (3)
- IE 3302 Engineering Statistics (3)
- ME 2733 Materials of Engineering (3)
- PHYS 2109 General Physics Laboratory (1)

Total Semester Hours: 16
Semester 5

- **CRITICAL:** "C" or better in PHYS 2110.
- CE 3400 Mechanics of Materials (3)
- IE 3201 Principles of Engineering Economy (3)
- IE 3520 Supply Chain Logistics I (3)
- IE 4362 Advanced Engineering Statistics (3)
- ENGL 2000 English Composition (3)

**Total Semester Hours: 15**

Semester 6

- IE 4425 Information Systems Engineering (3)
- IE 4453 Quality Control & Six Sigma (3)
- IE 4520 Supply Chain Logistics II (3)
- ME 3633 Manufacturing Processes & Methods (3)
- IE 4461 Human Factors Engineering (3)

**Total Semester Hours: 15**

Semester 7

- IE 4530 Lean Manufacturing Systems (3)
- IE 4597 Industrial Engineering Capstone Design I (2)
- IE 4516 Plant and Systems Design (3)
- General Education course - Arts/Humanities/Social Sciences (3)
- IE Electives (6)

**Total Semester Hours: 17**

Semester 8
- IE 4598 Industrial Engineering Capstone Design II (2)
- General Education course - Arts/Humanities/Social Sciences (9)
- IE Elective (3)

Total Semester Hours: 14

126 Total Sem. Hrs.
proposed

Industrial Engineering

CRITICAL REQUIREMENTS

SEMESTER 1: MATH 1021.
SEMESTER 2: MATH 1022 or MATH 1023
SEMESTER 3: CHEM 1201.
SEMESTER 4: "C" or better in MATH 1550
SEMESTER 5: "C" or better in PHYS 2110.

*Industrial Engineering Electives* • Choose from the list maintained in the department.

Students may optionally take three hours of advanced ROTC course work in place of one IE technical elective.

Semester 1

- **CRITICAL**: MATH 1021.
- CMST 1061 Fundamentals of Communication (3) or CMST 2060 Public Speaking (3) or ROTC (3)
- CHEM 1201 General Chemistry I (3)
- ENGL 1001 English Composition (3)
- IE 1002 Industrial Engineering Fundamentals (3)
- MATH 1550 Analytic Geometry and Calculus I (5)

Total Semester Hours: 17

Semester 2

- **CRITICAL**: MATH 1022 or MATH 1023
- CM 1020 Engineering Graphics for Mechanical Engineering (2)
• CHEM 1202 General Chemistry (3)
• IE 2060 Introduction to the Use of Computers (3)
• MATH 1552 Analytic Geometry and Calculus II (4)
• PHYS 2110 Particle Mechanics (3)
• PHYS 2108 Introductory Physics Laboratory (1)

**Total Semester Hours: 16**

**Semester 3**

• **CRITICAL:** CHEM 1201.

• ECON 2030 Economic Principles (3)
• MATH 2090 Elementary Differential Equations and Linear Algebra (4)
• PHYS 2112 Fluids, Thermodynamics, Waves, and Modern Physics (3)

• BIOL 1001 General Biology (3) or
• BIOL 1201 Biology for Science Majors I (3)

• EE 2950 Comprehensive Electrical Engineering (3)

**Total Semester Hours: 16**

**Semester 4**

• **CRITICAL:** "C" or better in MATH 1550

• CE 2450 Statics (3)
• IE 4113/ISDS 4113 (3)
• IE 2400 Methods and Systems Engineering (3)
• IE 3302 Engineering Statistics (3)
• ME 2733 Materials of Engineering (3)
• PHYS 2109 General Physics Laboratory (1)

**Total Semester Hours: 16**
Semester 5

- **CRITICAL:** "C" or better in PHYS 2110.
- CE 3400 Mechanics of Materials (3)
- IE 3201 Principles of Engineering Economy (3)
- IE 3520 Supply Chain Logistics I (3)
- IE 4362 Advanced Engineering Statistics (3)
- ENGL 2000 English Composition (3)

**Total Semester Hours: 15**

Semester 6

- IE 4425 Information Systems Engineering (3)
- IE 4453 Quality Control & Six Sigma (3)
- IE 4520 Supply Chain Logistics II (3)
- ME 3633 Manufacturing Processes & Methods (3)
- IE 4461 Human Factors Engineering (3)

**Total Semester Hours: 15**

Semester 7

- IE 4530 Lean Manufacturing Systems (3)
- IE 4597 Industrial Engineering Capstone Design I (2)
- IE 4516 Plant and Systems Design (3)
- General Education course - Arts/Humanities/Social Sciences (3)
- IE Electives (6)

**Total Semester Hours: 17**

Semester 8
• IE 4598 Industrial Engineering Capstone Design II (2)
• General Education course - Arts/Humanities/Social Sciences (9)
• IE Elective (3)

Total Semester Hours: 14

126 Total Sem. Hrs.
TOTAL HOURS = 125

INDUSTRIAL ENGINEERING 2014-2015

FALL | SPRING | FALL | SPRING | FALL | SPRING | FALL | SPRING
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

1. TOTAL HOURS = 125

2. FLOWCHART LEGEND

- Credit required
- Credit or registration required
- Grade of "C" or better required
- Before moving on to one or more following courses

3. Gen Ed
General Education - See 2014-2015 General Catalog

Office: 2508 Patrick F Taylor Hall www.mie.lsu.edu

IE Electives must be from approved electives list, available in the IE office or on the IE website (http://mie.lsu.edu)

IE students must also meet the GLOBAL KNOWLEDGE requirement. See the requirements sheet at http://mie.lsu.edu/aecatalog.htm, or available in the MIE office or College of Engineering office.

4. HOURS:
- 16
- 16
- 15
- 15
- 15
- 17
- 14 = 125
we can work with that......Thanks Helmut for working this through your faculty....

******************************

Craig M. Harvey, Ph.D., P.E.
Associate Professor
Program Director, Industrial Engineering
Department of Mechanical and Industrial Engineering
2508 Patrick F. Taylor Hall (Mail)
2519B Patrick F. Taylor Hall (Office)
Louisiana State University
Baton Rouge, LA 70803
Ph: 225-578-8761
Fax: 225-578-5924
e-mail:
harvey@lsu.edu

Even if you are on the right track, you'll get run over if you just sit there. – Will Rogers

On Feb 13, 2014, at 9:23 AM, Helmut Schneider <-schnei1@lsu.edu> wrote:

I sent an email to our faculty asking them to vote on the issue.
There are no objections to IE creating a course similar to ISDS 4113.
But the faculty objects to changing our prerequisite to two of the IE classes as originally planned.
However, adding "or consent of instructor" is acceptable.
Helmut Schneider

Sent from my iPad

On Feb 12, 2014, at 4:25 PM, "Anna M Castrillo" <-castril@lsu.edu> wrote:

Dr. Schneider,

I spoke with Dr. Larry Rouse, the chair of the C&C Committee, and we will be meeting
tomorrow to discuss the IE proposals. It seems there may be an easier way about this
crosslisting, IE/ISDS 4113. Dr. Rouse thinks “credit or registration in ISDS 3100 and
consent of instructor” may be the best option. The reasoning behind this is that the IE
curriculum does not have ISDS 3100 as a required course and students would then not
be able to take IE/ISDS 4113.
After our meeting tomorrow, I will let you know what the committee has suggested. This is a critical proposal as IE has a course in their curriculum that no longer exists and we are publishing the 14-15 catalog very soon. Tomorrow is the last C&C meeting to get anything into the 14-15 catalog.

Sincerely,

Anna Castrillo, M.A.
Coordinator
Office of the University Registrar
Louisiana State University
112 Thomas Boyd Hall
Phone: (225)578-4111
Fax: (225)578-5991
<image003.jpg>
REQUEST FOR ADDING, CHANGING, SUSPENDING OR DROPPING AN UNDERGRADUATE CURRICULUM

Department: Mechanical & Industrial Engineering
College: Engineering
Name of Curriculum/Major: Mechanical Engineering
Date: 12/18/13
Type of Degree: BSME

Has this change been discussed with and approved by all departments/colleges affected? Yes (x) No ( ) N/A ( )

ATTACH JUSTIFICATION for all actions: Use separate sheet.
ATTACH RESPONSE from any departments affected [i.e. any department whose course(s) are to be added.]
ATTACH FORM D ADDENDUM for all new curricula or changes involving General Education courses.

ACTION (check appropriate box):

( ) ADDING: The entire new curriculum, by semester, must be typed on plain sheets and attached to Form D. (See sample layout attached.)

(x ) CHANGING: Regardless if all semesters of a curriculum are to be changed or only parts, the present and proposed (eight-semester) recommended path should be attached on separate pages. On the Present recommended path, use strikeout and on the Proposed recommended path, highlight areas to identify deletions and additions. Do not use boldface to designate changes as boldface is reserved for critical requirements within the recommended path. Explain all changes adequately on attachment.

( ) SUSPENDING: Provide an adequate explanation for suspending the curriculum on plain sheets and attach.

( ) DROPPING: Provide an adequate explanation for dropping the curriculum on plain sheets and attach.

CURRICULUM

<table>
<thead>
<tr>
<th>PRESENT</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total semester hours in current curriculum:</td>
<td>127-128</td>
</tr>
</tbody>
</table>

APPROVALS:

Department Faculty Approval Date 12/17/13
Department Chair's Signature

College Faculty Approval Date 1/18/14
College Dean's Signature

Chair, FS C & C Committee 2/13/14
Academic Affairs Approval 2/18/14

College Contact:

(Please print name.)
College Contact E-mail:
JUSTIFICATION

MATH 2090 originally included Fourier Series and Laplace Transforms. However, due to time constraints, most instructors did not get to Fourier Series and some did not cover Laplace Transforms. Fourier Series has now been removed from the catalog description of MATH 2090. These subjects are needed in ME 3143, 3603, 4433, 4183, and a number of ME technical electives. Math 2070 does cover both subjects and appears to be better suited to meeting the needs of ME students. Abbreviated syllabi for MATH 2070 and 2090 are included.
GENERAL EDUCATION REQUIREMENTS

When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement.

Include course rubric, number, and credit hours when curricula differ from the default values.

Indicate the curriculum semester for all General Education courses.

<table>
<thead>
<tr>
<th>General Education Requirement</th>
<th>Course(s)</th>
<th>Credit Hours</th>
<th>Curriculum Semester</th>
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<tbody>
<tr>
<td>English Composition (6 hrs.)</td>
<td>ENGL 1001 or 1004</td>
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<td>ENGL 2000</td>
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<td>(x) 2nd (x) 6th</td>
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<td>(x) 3rd (x) 7th</td>
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<td>(x) 4th (x) 8th</td>
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<td>(from mathematics department)</td>
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<td>(x) 2nd (x) 6th</td>
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<td>General Education analytical reasoning course</td>
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<td>(from mathematics department)</td>
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<td>sequence</td>
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<td>CHEM 1201, 1202</td>
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<td>General Education natural science course</td>
<td>3</td>
<td>(x) 1s (x) 5th</td>
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<td>Life Science Elective</td>
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<td>(x) 3rd (x) 7th</td>
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<td>(x) 4th (x) 8th</td>
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<tr>
<td>Social Sciences (6 hrs.)</td>
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<td>3</td>
<td>(x) 1s (x) 5th</td>
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<tr>
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<td>(At least three hours at the 2000-level.)</td>
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<td>(x) 2nd (x) 6th</td>
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<td>(x) 4th (x) 8th</td>
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</tbody>
</table>
A grade of ‘C’ or better is required in Chemistry 1202, Mathematics 1552, and Physics 2110 (or equivalent courses) before a student may enroll in Mechanical Engineering 2334. A grade of ‘C’ or better is required in MATH 2090 (or equivalent course) before a student may enroll in Mechanical Engineering 3834. General Education required courses (*).

### SEMESTER 1

<table>
<thead>
<tr>
<th>Course</th>
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<td>Chemistry 1201</td>
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<tr>
<td>Construction Management 1020</td>
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<td>English 1001</td>
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<tr>
<td>Mathematics 1550</td>
<td>5</td>
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<td>General Education arts, humanities,</td>
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</tr>
<tr>
<td>social sciences course</td>
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Total: 16

### SEMESTER 2

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<td>Chemistry 1212 or Physics 2108</td>
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<td>Mathematics 1552</td>
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<td>Physics 2110</td>
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Total: 14-15

### SEMESTER 3

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<td>ME 2212, 2334, 2723</td>
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<td>Physics 2113</td>
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Total: 17

### SEMESTER 4

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<td>Mathematics 2070</td>
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Total: 18

### SEMESTER 5

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<td>ME 3143, 3633, 3834, 4133</td>
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Total: 18

### SEMESTER 6

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<td>ME 3603, 3752, 4244, 4433, 4611</td>
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Total: 16

### SEMESTER 7

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<tr>
<td>social sciences course</td>
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<td>ME 4183, 4201, 4243, 4621</td>
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Total: 14

### SEMESTER 8

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<td>ME 4202</td>
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<td>Approved Technical Elective</td>
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Total: 14

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**Current Catalog**

**Proposed Catalog**

A grade of ‘C’ or better is required in Chemistry 1202, Mathematics 1552, and Physics 2110 (or equivalent courses) before a student may enroll in Mechanical Engineering 2334. A grade of ‘C’ or better is required in MATH 2090 (or equivalent course) before a student may enroll in Mechanical Engineering 3834. General Education required courses (*).
MATH 2070 Mathematical Methods in Engineering (4)
Prerequisites: MATH 1552. Credit will be given for only one of the following: MATH 2065, 2070, 2090.
Ordinary differential equations, Laplace transforms, linear algebra, and Fourier series; physical applications stressed.

Syllabus


Chapter 1: First Order Differential Equations
1.1 An Introduction to Differential Equations
1.2 Direction Fields
1.3 Separable Differential Equations
1.4 Linear First Order Equations
1.5 Substitutions; Homogeneous and Bernoulli Equations
1.6 Exact Equations

Chapter 2: The Laplace Transform
2.1 Laplace Transform Method: Introduction
2.2 Definitions, Basic Formulas, and Principles
2.3 Partial Fractions: A Recursive Method for Linear Terms
2.4 Partial Fractions: A Recursive Method for Irreducible Quadratics
2.5 Laplace Inversion
2.6 The Linear Spaces *Eq*: Special Cases
2.7 The Linear Spaces *Eq*: The General Case
2.8 Convolution

Chapter 3: Second Order Constant Coefficient Linear Differential Equations
3.1 Notation, Definitions, and some Basic Results
3.2 Linear Independence
3.3 Linear Homogeneous Differential Equations
3.4 The Method of Undetermined Coefficients
3.5 Spring Systems or 3.7 RCL Circuits

Chapter 4: Linear Constant Coefficient Differential Equations
4.1 Notation, Definitions, and Basic Results
4.2 Linear Homogeneous Differential Equations
4.3 Nonhomogeneous Differential Equations

Chapter 5: Second Order Linear Differential Equations
5.1 The Existence and Uniqueness Theorem
5.2 The Homogeneous Case
5.3 The Cauchy-Euler Equations
5.5 Reduction of Order
5.6 Variation of Parameters

Chapter 6: Discontinuous Functions and the Laplace Transform
6.1 Calculus of Discontinuous Functions
6.2 The Heaviside Class
6.3 Laplace Transform Method for function in the Heaviside Class
6.4 The Dirac Delta Function
6.5 Convolution

Chapter 8: Matrices
8.1 Matrix Operations
8.2 Systems of Linear Equations
8.3 Invertible Matrices
8.4 Determinants
8.5 Eigenvectors and Eigenvalues

Chapter 9: Linear Systems of Differential Equations
9.1 Introduction
9.2 Linear Systems of Differential Equations
9.3 The Matrix Exponential Function and its Laplace Transform
9.4 Fulmer's Method
9.5 Constant Coefficient Linear Systems

Supplement: Fourier Series Methods
10.1 Periodic Functions and Trigonometric Series
10.2 Convergence of Fourier Series
10.3 Fourier Sine and Cosine Series
10.4 Applications of Fourier Series
10.5 The Vibrating String via Separation of Variables
10.6 The Heat Equation and Separation of Variables
10.7 Laplace’s Equation in a Circle
MATH 2090 Elementary Differential Equations and Linear Algebra (4)
F, S, Su
Prerequisites: MATH 1552. Credit will not be given for both this course and MATH 2065, 2070, or 2085.

Syllabus


Chapter 1: First-Order Differential Equations
1.2 Basic Ideas and terminology
1.4 Separable Differential Equations
1.6 First Order Linear Differential Equations
1.9 Exact Differential Equations

Chapter 2: Matrices and Systems of Linear Equations
2.1 Matrices: Definitions and Notations
2.2 Matrix Algebra
2.4 Elementary Row Operations and Row-Echelon Matrices
2.5 Gaussian Elimination
2.6 Inverse of a Square Matrix

Chapter 3: Determinants
3.1 The Definition of the Determinant
3.2 Properties of the Determinant
3.3 Cofactor Expansions

Chapter 4: Vector Spaces
4.2 Definition of a Vector Space
4.3 Subspaces
4.4 Spanning Sets
4.5 Linear Dependence and Linear Independence
4.6 Bases and Dimension

Chapter 5: Linear Transformations
5.1 Definition of a Linear Transformation
5.3 The Kernel and Range of a Linear Transformation
5.6 The Eigenvalue/Eigenvector Problem
5.7 General Results for Eigenvalues and Eigenvectors

Chapter 6: Linear Differential Equations of Order n
6.1 General Theory for Linear Differential Equations
6.2 Constant-Coefficient Homogeneous Linear Differential Equations
6.3 The Method of Undetermined Coefficients, Annihilators
6.7 The Variation of Parameters
Chapter 7: Systems of Differential Equations
7.1 First-Order Linear Systems
7.2 Vector Formulation
7.3 General Results for First-Order Linear Differential Systems
7.4 Vector Differential Equations: Non-defective Coefficient Matrix
7.6 Variation of Parameters for Linear Systems

Chapter 8: The Laplace Transform and Some Elementary Applications
8.1 Definition of Laplace Transform
8.2 Existence of the Laplace Transform and Inverse Transform
8.4 The Transform of Derivatives and Solution of Initial-Value Problems
8.5 The First Shifting Theorem
8.6 The Unit Step Function
8.7 The Second Shifting Theorem

Optional topics that could be taught at the discretion of the instructor include:
1.8 Change of Variables, Homogeneous Equations, Bernoulli's Equation
1.11 Some Higher-Order Differential Equations
5.8 Diagonalization
5.9 An introduction to the Matrix Exponential Function.
6.9 Reduction of Order
Anna M Castrillo

From: Jack Helms <helms@me.lsu.edu> 
Sent: Thursday, February 13, 2014 1:08 PM 
To: Anna M Castrillo 
Subject: Re: ME proposal question 

Anna, 

We felt it would make it easier for students from other Departments to pursue minors in ME, MATSC, AERO, and NCPE. 

Jack 
At 12:57 PM 2/13/2014, you wrote: 

Dr. Helms, 

Before the meeting today, the committee wanted to know ?If the requirement changes to MATH 2070, why are they still leaving MATH 2070 or 2090 as prerequisites in all of the courses?? 

If you could provide me with a response, I will let the committee know. Our meeting is at 2:00. 

Thanks, 

Anna Castrillo, M.A. 
Coordinator 
Office of the University Registrar 
Louisiana State University 
112 Thomas Boyd Hall 
Phone: (225)578-4111 
Fax: (225)578-5991 

LSU 

Jack E. Helms, Jr., Ph.D., P.E. 
Professional-in-Residence & Undergraduate Coordinator 
Phone: 225-578-6299 
Fax: 2225-578-5924 
Room 2210 Patrick F. Taylor Hall 
helms@me.lsu.edu
REQUEST FOR ADDING, CHANGING, SUSPENDING OR DROPPING AN UNDERGRADUATE CURRICULUM

Department: Mathematics
College: College of Science
Name of Curriculum/Major: Mathematics
Type of Degree: B.S.
Date: 1/16/14

Has this change been discussed with and approved by all departments/colleges affected? Yes (X) No ( ) N/A ( )

ATTACH JUSTIFICATION for all actions: Use separate sheet.
ATTACH RESPONSE from any departments affected [i.e. any department whose course(s) are to be added.]
ATTACH FORM D ADDENDUM for all new curricula or changes involving General Education courses.

ACTION (check appropriate box):

( ) ADDING: The entire new curriculum, by semester, must be typed on plain sheets and attached to Form D. (See sample layout attached.)

( X ) CHANGING: Regardless if all semesters of a curriculum are to be changed or only parts, the present and proposed (eight-semester) recommended path should be attached on separate pages. On the Present recommended path, use strikeout and on the Proposed recommended path, highlight areas to identify deletions and additions. Do not use boldface to designate changes as boldface is reserved for critical requirements within the recommended path. Explain all changes adequately on attachment.

( ) SUSPENDING: Provide an adequate explanation for suspending the curriculum on plain sheets and attach.

( ) DROPPING: Provide an adequate explanation for dropping the curriculum on plain sheets and attach.

CURRICULUM

<table>
<thead>
<tr>
<th>PRESENT</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total semester hours in current curriculum: 120</td>
<td>Total semester hours in proposed curriculum: 120</td>
</tr>
</tbody>
</table>

APPROVALS:

Department Faculty Approval Date: Jan 17, 2014
College Faculty Approval Date: 1/30/14

Charles R. [Signature] 1-17-2014
Department Chair's Signature

S. [Signature] 1/3/14
Chair, FS C & C Committee

Kim Kubicek
College Contact: (Please print name.)

kkubicek@lsu.edu
College Contact E-mail:
Justification

This proposal updates the footnote on all Mathematics concentrations. The proposed changes are necessary to update the list general education courses which Mathematics majors can take to fulfill a portion of the natural science course sequence. Specifically, PHYS 2101 and 2102 are removed as these courses are being phased out. The following general education sequences are added:

- PHYS 2110, PHYS 2112
- PHYS 2110, PHYS 2113

One additional housekeeping change is made to the footnote. “GEOL 1111 OR GEOL 1003” is replaced with “GEOL 1111, GEOL 1003.” The word “OR” was inadvertently included in the online catalog, however GEOL 1111 AND 1003 are approved as a general education natural science sequence.

Finally, one correction is made to the Actuarial Science concentration to specify that ECON 2030 must be passed with a grade of “C” or better as it is an area of concentration course. A similar proposal was approved in November eliminating a third general education social science course and replacing it with approved electives. However, the proposal which was sent through mistakenly noted that “Approved Electives” must be passed with a “C” or better when it should have applied to ECON 2030. The proposal corrects that error.
GENERAL EDUCATION REQUIREMENTS

When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement. Include course rubric, number, and credit hours when curricula differ from the default values. Indicate the curriculum semester for all General Education courses.

Math with Mathematics Concentration

<table>
<thead>
<tr>
<th>General Education Requirement</th>
<th>Course(s)</th>
<th>Credit Hours</th>
<th>Curriculum Semester</th>
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<tr>
<td>English Composition (6 hrs.)</td>
<td>ENGL 1001 or 1004</td>
<td>3</td>
<td>( ) 1' () 5'h</td>
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<td>ENGL 2000</td>
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</table>
GENERAL EDUCATION REQUIREMENTS

When a department adds a new curriculum or makes changes in an existing one, a Form D Addendum must also be submitted. This form is simply a list of those courses in the curriculum that satisfy the General Education requirement. Include course rubric, number, and credit hours when curricula differ from the default values. Indicate the curriculum semester for all General Education courses.

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<td>(At least three hours at the 2000-level.)</td>
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### Math with Secondary Education Concentration

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<td><strong>English Composition (6 hrs.)</strong></td>
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<td>3</td>
<td>1</td>
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<td>ENGL 2000</td>
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<td><strong>Arts</strong></td>
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<td><strong>Natural Sciences (9 hrs.)</strong></td>
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<tr>
<td>(If 2 course sequence is taken in the physical sciences, the additional 3 hour course must be from the life sciences, and vice versa.)</td>
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<td>General Education natural science course</td>
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<td>(At least three hours at the 2000-level)</td>
<td>General Education social science course (2000-level) EDCI 2500</td>
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**Actuarial Science - Present**

**CRITICAL REQUIREMENTS**

**SEMESTER I:**
- "C" or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.

**SEMESTER 2:**
- "C" or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.
- Admission to the College.

**SEMESTER 3:**
- "C" or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA.

**SEMESTER 4:**
- "C" or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.

**SEMESTER 5:**
- "C" or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

**SEMESTER 1**
- CRITICAL: "C" or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.

- ENGL 1001 English Composition (3)
- MATH 1550 Analytic Geometry and Calculus I (5) or
- MATH 1551 HONORS: Analytic Geometry and Calculus I (5)
- First Course in Foreign Language Sequence (4)
- General Education course - Natural Sciences (3)
- Natural Sciences Lab (0-1)

**Total Semester Hours: 15-16**

**SEMESTER 2**
- CRITICAL: "C" or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.

- MATH 1552 Analytic Geometry and Calculus II (4)
- Second Course in Foreign Language Sequence (4)
- General Education course - Natural Sciences (3)
- Natural Sciences Lab (2-1)
- General Education course - Arts (3)

**Total Semester Hours: 16-15**

**SEMESTER 3**
- CRITICAL: "C" or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA: Admission to the College.

- MATH 2020 Solving Discrete Problems (3) or
- MATH 2025 Integral Transforms and Their Applications (3) or
- MATH 2030 Discrete Dynamical Systems (3)
- MATH 2057 Multidimensional Calculus (3)
- Social Sciences or Humanities course (3)
- General Education course - Natural Sciences (3)
- General Education course - Humanities (English/honors 2000-level) (3)

**Total Semester Hours: 15**

**SEMESTER 4**
- CRITICAL: "C" or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.

- ENGL 2000 English Composition (3)
- MATH 2085 Linear Algebra (3)
- MATH 2030 Discrete Dynamical Systems (3)
- General Education course - Social Sciences (3)

**Total Semester Hours: 15**

**SEMESTER 5**
- CRITICAL: "C" or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

- MATH 3355 Probability (3)
- ACCT 2001 Introductory Financial Accounting (3)
- ECON 2030 Economic Principles (3)
- General Education course - Humanities (English/honors 2000-level) (3)

**Total Semester Hours: 15**

**SEMESTER 6**

- FIN 3715 Business Finance (3)
- EXST 2201 Introduction to Statistical Analysis (4)
- MATH 4058 Elementary Stochastic Processes (3)
- Approved Electives (5)

**Total Semester Hours: 15**

**SEMESTER 7**

- MATH 4056 Mathematical Statistics (3)
- MATH 4050 Interest Theory (5)
- MATH 4053 Finite Dimensional Vector Spaces (3)
- MATH 4997 Vertically Integrated Research (3) or
- EXST 4087 Special Topics in Applied Statistics (3)

**Total Semester Hours: 14**

**SEMESTER 8**

- EXST 3201 Statistical Analysis II (4)
- MATH 4153 Finite Dimensional Vector Spaces (3)
- Approved Electives (8)

**Total Semester Hours: 15**

120 Total Sem. Hrs.
To meet the university's General Education Natural Sciences requirement and the College of Science's natural sciences requirement, a mathematics major must take the following:

One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202

One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102, CHEM 1001, CHEM 1002, CHEM 1201, CHEM 1202, GEOL 1001, GEOL 1003, GEOL 1001, GEOL 2020, GEOL 1111 or GEOL 1003, GEOL 1111, GEOL 2020, PHYS 1201, PHYS 1202, PHYS 2001, PHYS 2002, PHYS 2101, PHYS 2102.

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.
Actuarial Science - Proposed

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA: Admission to the College.
SEMESTER 4: “C” or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.

ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5) or
MATH 1551 HONORS: Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1) 1
Total Semester Hours: 15-16

Semester 2
CRITICAL: “C” or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.

MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1) 1
General Education course - Arts (3)
Total Semester Hours: 16-15

Semester 3
CRITICAL: “C” or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA: Admission to the College.

MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
MATH 2057 Multidimensional Calculus (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 15

Semester 4
CRITICAL: “C” or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.
ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

MATH 3355 Probability (3)
ACCT 2001 Introductory Financial Accounting (3)
ECON 2030 Economic Principles (3)
Approved Electives (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 15

Semester 6

FIN 3715 Business Finance (3)
EXST 2201 Introduction to Statistical Analysis (4)
MATH 4058 Elementary Stochastic Processes (3)
Approved Electives (5)
Total Semester Hours: 15

Semester 7

MATH 4050 Interest Theory (5)
MATH 4056 Mathematical Statistics (3)
MATH 4020 Capstone Course (3) or
MATH 4997 Vertically Integrated Research (3) or
EXST 4087 Special Topics in Applied Statistics (3)
Social Sciences or Humanities course (3)
Total Semester Hours: 14

Semester 8

EXST 3201 Statistical Analysis II (4)
MATH 4153 Finite Dimensional Vector Spaces (3)
Approved Electives (8)
Total Semester Hours: 15

120 Total Sem. Hrs.
To meet the university’s General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:

1. One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202
2. One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1002; CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003; GEOL 1001, GEOL 2020; GEOL 1111, GEOL 1003; GEOL 1111, GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2110, 2112; PHYS 2110, 2113

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

2 – ECON 2030 applies as three hours toward the University general education social science requirement. However, since it is also a concentration course, it must be passed with a grade of “C” or better.
CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA; Admission to the College.
SEMESTER 4: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030; 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.
ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3) 
Natural Sciences Lab (0-1)
Total Semester Hours: 15-16

Semester 2
CRITICAL: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.
MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3) 
Natural Sciences Lab (2-1)
General Education course - Arts (3)
Total Semester Hours: 16-15

Semester 3
CRITICAL: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA; Admission to the College.
MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3) 
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.
ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085; MATH 2020/MATH 2025/MATH 2030; 2.0 Cumulative, LSU and Semester GPA.
MATH 4023 Applied Algebra (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Area of Concentration Course (3) 
Approved Elective (3)
Total Semester Hours: 15

Semester 6
MATH 4171 Theory of Graphs (3)
MATH 4025 Optimization Theory and Applications (3)
Social Sciences or Humanities course (3)
Area of Concentration Course (3)
Approved Elective (3)
Total Semester Hours: 15

Semester 7
MATH 4172 Combinatorics (3)
Approved Electives (12)
Total Semester Hours: 15

Semester 8
MATH 4020 Capstone Course (3) or
MATH 4997 Vertically Integrated Research (3)
Approved Electives (10)
Total Semester Hours: 13

120 Total Sem. Hrs.
To meet the university’s General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:

One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202

One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102, CHEM 1001, CHEM 1002, CHEM 1201, CHEM 1202, GEOL 1001, GEOL 1003, GEOL 1001, GEOL 2020, GEOL 1111 or GEOL 1003, GEOL 1111, GEOL 2020, PHYS 1201, PHYS 1202, PHYS 2101, PHYS 2102.

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

- Select course from: MATH 3355, MATH 4024, MATH 4027, MATH 4064, MATH 4065, MATH 4066, MATH 4153, MATH 4181, MATH 4340.
CRITICAL REQUIREMENTS

SEMESTER 1: "C" or better in ENGL 1001; 2.0 Cumulative. LSU and Semester GPA.
SEMESTER 2: "C" or better in MATH 1550; 2.0 Cumulative. LSU and Semester GPA.
SEMESTER 3: "C" or better in MATH 1552; 2.0 Cumulative. LSU and Semester GPA; Admission to the College.
SEMESTER 4: "C" or better in MATH 2057; 2.0 Cumulative. LSU and Semester GPA.
SEMESTER 5: "C" or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030; 2.0 Cumulative. LSU and Semester GPA.

Semester 1
CRITICAL: "C" or better in ENGL 1001; 2.0 Cumulative. LSU and Semester GPA.

ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1)
Total Semester Hours: 15-16

Semester 2
CRITICAL: "C" or better in MATH 1550; 2.0 Cumulative. LSU and Semester GPA.

MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1)
General Education course - Arts (3)
Total Semester Hours: 16-15

Semester 3
CRITICAL: "C" or better in MATH 1552; 2.0 Cumulative. LSU and Semester GPA; Admission to the College.

MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: "C" or better in MATH 2057; 2.0 Cumulative. LSU and Semester GPA.

ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: "C" or better in MATH 2085; MATH 2020/MATH 2025/MATH 2030; 2.0 Cumulative. LSU and Semester GPA.

MATH 4023 Applied Algebra (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Area of Concentration Course (3)
Approved Elective (3)
Total Semester Hours: 15

Semester 6
MATH 4171 Theory of Graphs (3)
MATH 4025 Optimization Theory and Applications (3)
Social Sciences or Humanities course (3)
Area of Concentration Course (3)
Approved Elective (3)
Total Semester Hours: 15

Semester 7
MATH 4172 Combinatorics (3)
Approved Electives (12)
Total Semester Hours: 15

Semester 8
MATH 4020 Capstone Course (3) or
MATH 4997 Vertically Integrated Research (3)
Approved Electives (10)
Total Semester Hours: 13

120 Total Sem. Hrs.
To meet the university’s General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:

1. One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202
2. One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1002; CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003; GEOL 1001, GEOL 2020; GEOL 1111, GEOL 1003; GEOL 1111, GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2110, 2112, PHYS 2110, 2113

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

1. Select course from: MATH 3355, MATH 4024, MATH 4027, MATH 4064, MATH 4065, MATH 4066, MATH 4153, MATH 4181, MATH 4340.
Computational Mathematics - Present

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 4: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.
ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5) or
MATH 1551 HONORS: Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (1)
Total Semester Hours: 16

Semester 2
CRITICAL: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.
MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (1)
General Education course - Arts (3)
Total Semester Hours: 15

Semester 3
CRITICAL: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA: Admission to the College.
MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.
ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.
MATH 2065 Elementary Differential Equations (3)
MATH 4064 Numerical Linear Algebra (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Approved Elective (3)
Total Semester Hours: 15

Semester 6
MATH 4065 Numerical Analysis (3)
MATH 4066 Numerical Differential Equations (3)
Area of Concentration Course (3)
Approved Electives (5)
Total Semester Hours: 14

Semester 7
MATH 4025 Optimization Theory and Applications (3)
MATH 4031 Advanced Calculus I (3)
MATH 4035 Advanced Calculus of Several Variables (3) or
MATH 4032 Advanced Calculus II (3)
Social Sciences or Humanities course (3)
Area of Concentration Course (3)
Total Semester Hours: 15

Semester 8
MATH 4020 Capstone Course (3)
Area of Concentration Course (3)
Approved Electives (8)
Total Semester Hours: 14

120 Total Sem. Hrs.
1 - To meet the university's General Education Natural Sciences requirement and the College of Science's natural sciences requirement, a mathematics major must take the following:

One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202

One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003; GEOL 1001, GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2101, PHYS 2102.

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

2 - Students may choose to take MATH 2090 and waive MATH 2065 as well as the core requirement of MATH 2085. The two-hour difference will be added to approve electives.

3 - Select from the following: MATH 4340, MATH 4036, MATH 3355, MATH 4058, CSC 4356 (ME 4573), CSC 4357 (ME 4583), ME 4823, EE 3160, EE 4160, or upper division courses in engineering and science that have a strong computational component with the approval of the mathematics department.
Computational Mathematics - Proposed

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA: Admission to the College.
SEMESTER 4: “C” or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.
ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5) or MATH 1551 HONORS: Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (1)
Total Semester Hours: 16

Semester 2
CRITICAL: “C” or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.
MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (1)
General Education course - Arts (3)
Total Semester Hours: 15

Semester 3
CRITICAL: “C” or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA: Admission to the College.
MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or MATH 2025 Integral Transforms and Their Applications (3) or MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: “C” or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.
ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or MATH 2025 Integral Transforms and Their Applications (3) or MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.
MATH 2065 Elementary Differential Equations (3)
MATH 4064 Numerical Linear Algebra (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Approved Elective (3)
Total Semester Hours: 15

Semester 6
MATH 4065 Numerical Analysis (3)
MATH 4066 Numerical Differential Equations (3)
Area of Concentration Course (3)
Approved Electives (3)
Total Semester Hours: 14

Semester 7
MATH 4025 Optimization Theory and Applications (3)
MATH 4031 Advanced Calculus I (3)
MATH 4035 Advanced Calculus of Several Variables (3) or MATH 4032 Advanced Calculus II (3)
Social Sciences or Humanities course (3)
Area of Concentration Course (3)
Total Semester Hours: 15

Semester 8
MATH 4020 Capstone Course (3)
Area of Concentration Course (3)
Approved Electives (8)
Total Semester Hours: 14

120 Total Sem. Hrs.
To meet the university’s General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:

1. One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202

2. One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1002; CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003; GEOL 1001, GEOL 2020; GEOL 1111, GEOL 1003; GEOL 1111; GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2110, 2112; PHYS 2110, 2113

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

- Students may choose to take MATH 2090 and waive MATH 2065 as well as the core requirement of MATH 2085. The two-hour difference will be added to approve electives.

- Select from the following: MATH 4340, MATH 4036, MATH 3355, MATH 4058, CSC 4356 (ME 4573), CSC 4357 (ME 4583), ME 4823, EE 3160, EE 4160, or upper division courses in engineering and science that have a strong computational component with the approval of the mathematics department.
Mathematics - Present

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001: 2.0 Cumulative. LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550: 2.0 Cumulative. LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552: 2.0 Cumulative. LSU and Semester GPA; Admission to the College.
SEMESTER 4: “C” or better in MATH 2057: 2.0 Cumulative. LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative. LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001: 2.0 Cumulative. LSU and Semester GPA.
ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1)
Total Semester Hours: 15-16

Semester 2
CRITICAL: “C” or better in MATH 1550: 2.0 Cumulative. LSU and Semester GPA.
MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1)
General Education course - Arts (3)
Total Semester Hours: 16-15

Semester 3
CRITICAL: “C” or better in MATH 1552: 2.0 Cumulative. LSU and Semester GPA: Admission to the College.
MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: “C” or better in MATH 2057: 2.0 Cumulative. LSU and Semester GPA.
ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative. LSU and Semester GPA.
MATH 4200 Abstract Algebra I (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Area of Concentration Courses (6)
Total Semester Hours: 15

Semester 6
MATH 4031 Advanced Calculus I (3)
Social Sciences or Humanities course (3)
Area of Concentration Course (3)
Approved Electives (6)
Total Semester Hours: 15

Semester 7
MATH 4035 Advanced Calculus of Several Variables (3) or
MATH 4032 Advanced Calculus II (3)
MATH 4020 Capstone Course (3) or
MATH 4997 Vertically Integrated Research (3)
Approved Electives (9)
Total Semester Hours: 15

Semester 8
Approved Electives (13)
Total Semester Hours: 13

120 Total Sem. Hrs.
To meet the university's General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:

One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202

One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102, CHEM 1001, CHEM 1002, CHEM 1201, CHEM 1202, GEOL 1001, GEOL 1003, GEOL 1001, GEOL 2020, GEOL 1111 or GEOL 1003, GEOL 1111, GEOL 2020, PHYS 1201, PHYS 1202, PHYS 2001, PHYS 2002, PHYS 2101, PHYS 2102.

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

Select from: MATH 3355, MATH 4027, MATH 4032, MATH 4035, MATH 4036, MATH 4039, MATH 4064, MATH 4153, MATH 4065, MATH 4158, MATH 4171, MATH 4172, MATH 4181, MATH 4201, MATH 4325, MATH 4340, MATH 4345, MATH 4700, MATH 4997, MATH 4999.

NOTE: At most six credit hours of the 21 hours in the concentration may be from MATH 4020, MATH 4997 or MATH 4999.
Mathematics – Proposed

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA: Admission to the College.
SEMESTER 4: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030; 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.
ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1)
Total Semester Hours: 15-16

Semester 2
CRITICAL: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.
MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1)
General Education course - Arts (3)
Total Semester Hours: 16-15

Semester 3
CRITICAL: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA: Admission to the College.
MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.
ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030; 2.0 Cumulative, LSU and Semester GPA.
MATH 4200 Abstract Algebra I (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Area of Concentration Courses (6)
Total Semester Hours: 15

Semester 6
MATH 4031 Advanced Calculus I (3)
Social Sciences or Humanities course (3)
Area of Concentration Course (3)
Approved Electives (6)
Total Semester Hours: 15

Semester 7
MATH 4035 Advanced Calculus of Several Variables (3) or
MATH 4032 Advanced Calculus II (3)
MATH 4020 Capstone Course (3) or
MATH 4997 Vertically Integrated Research (3)
Approved Electives (9)
Total Semester Hours: 15

Semester 8
Approved Electives (13)
Total Semester Hours: 13

120 Total Sem. Hrs.
1. To meet the university’s General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:
   
   1. One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202
   
   2. One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1002; CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003; GEOL 1001, GEOL 2020; GEOL 1111, GEOL 1003; GEOL 1111; GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2110, 2112; PHYS 2110, 2113

   Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

2. Select from: MATH 3355, MATH 4027, MATH 4032, MATH 4035, MATH 4036, MATH 4039, MATH 4064, MATH 4153, MATH 4065, MATH 4158, MATH 4171, MATH 4172, MATH 4181, MATH 4201, MATH 4325, MATH 4340, MATH 4345, MATH 4700, MATH 4997, MATH 4999.

   NOTE: At most six credit hours of the 21 hours in the concentration may be from MATH 4020, MATH 4997 or MATH 4999.
Mathematical Statistics - Present

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA: Admission to the College.
SEMESTER 4: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

Semester 1
CRITICAL: “C” or better in ENGL 1001; 2.0 Cumulative, LSU and Semester GPA.

ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1)
Total Semester Hours: 15-16

Semester 2
CRITICAL: “C” or better in MATH 1550; 2.0 Cumulative, LSU and Semester GPA.

MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1)
General Education course - Arts (3)
Total Semester Hours: 16-15

Semester 3
CRITICAL: “C” or better in MATH 1552; 2.0 Cumulative, LSU and Semester GPA: Admission to the College.

MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: “C” or better in MATH 2057; 2.0 Cumulative, LSU and Semester GPA.

ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

MATH 3355 Probability (3)
EXST 2201 Introduction to Statistical Analysis (4)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Approved Elective (2)
Total Semester Hours: 15

Semester 6
EXST 3201 Statistical Analysis II (4)
MATH 4031 Advanced Calculus I (3)
Social Sciences or Humanities Course (3)
Approved Electives (5)
Total Semester Hours: 15

Semester 7
MATH 4035 Advanced Calculus of Several Variables (3) or
MATH 4058 Elementary Stochastic Processes (3) or
MATH 4153 Finite Dimensional Vector Spaces (3)
MATH 4056 Mathematical Statistics (3)
EXST 4012 Introduction to Sampling Techniques (3)
MATH 4020 Capstone Course (3) or
MATH 4002 Vertically Integrated Research (3) or
EXST 4087 Special Topics in Applied Statistics (3)
Total Semester Hours: 12

Semester 8
MATH 4035 Advanced Calculus of Several Variables (3) or
MATH 4058 Elementary Stochastic Processes (3) or
MATH 4153 Finite Dimensional Vector Spaces (3)
Approved Electives (13)
Total Semester Hours: 16

120 Total Sem. Hrs.
To meet the university's General Education Natural Sciences requirement and the College of Science's natural sciences requirement, a mathematics major must take the following:

One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202

One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1002; GEOL 1001, GEOL 1002; GEOL 1111 or GEOL 1001; GEOL 1111, GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2101, PHYS 2102.

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.
Mathematical Statistics - Proposed

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 3: “C” or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA; Admission to the College.
SEMESTER 4: “C” or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 5: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

SEMESTER 1
CRITICAL: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.

ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1)
Total Semester Hours: 15-16

SEMESTER 2
CRITICAL: “C” or better in MATH 1550: 2.0 Cumulative, LSU and Semester GPA.

MATH 1552 Analytic Geometry and Calculus II (4)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1)
General Education course - Arts (3)
Total Semester Hours: 16-15

SEMESTER 3
CRITICAL: “C” or better in MATH 1552: 2.0 Cumulative, LSU and Semester GPA; Admission to the College.

MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
Social Sciences or Humanities course (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

SEMESTER 4
CRITICAL: “C” or better in MATH 2057: 2.0 Cumulative, LSU and Semester GPA.

ENGL 2000 English Composition (3)
MATH 2085 Linear Algebra (3)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Social Sciences (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

SEMESTER 5
CRITICAL: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.0 Cumulative, LSU and Semester GPA.

MATH 3355 Probability (3)
EXST 2201 Introduction to Statistical Analysis (4)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (2000-level) (3)
Approved Elective (2)
Total Semester Hours: 15

SEMESTER 6

EXST 3201 Statistical Analysis II (4)
MATH 4031 Advanced Calculus I (3)
Social Sciences or Humanities Course (3)
Approved Electives (5)
Total Semester Hours: 15

SEMESTER 7

MATH 4035 Advanced Calculus of Several Variables (3) or
MATH 4058 Elementary Stochastic Processes (3) or
MATH 4153 Finite Dimensional Vector Spaces (3)
MATH 4056 Mathematical Statistics (3)
EXST 4012 Introduction to Sampling Techniques (3)
MATH 4020 Capstone Course (3) or
MATH 4997 Vertically Integrated Research (3) or
EXST 4087 Special Topics in Applied Statistics (3)
Total Semester Hours: 12

SEMESTER 8

MATH 4035 Advanced Calculus of Several Variables (3) or
MATH 4058 Elementary Stochastic Processes (3) or
MATH 4153 Finite Dimensional Vector Spaces (3)
Approved Electives (13)
Total Semester Hours: 16

120 Total Sem. Hrs.
To meet the university's General Education Natural Sciences requirement and the College of Science's natural sciences requirement, a mathematics major must take the following:

1. One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202
2. One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003; GEOL 1001, GEOL 2020; GEOL 1111, GEOL 1003; GEOL 1111; GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2110, 2112; PHYS 2110, 2113

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.
Secondary Education – Mathematics - Present

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.
SEMESTER 3: “C” or better in MATH 1552: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA; Admission to the College.
SEMESTER 4: “C” or better in MATH 2057: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.
SEMESTER 5: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

This concentration is part of the Geaux Teach Math and Sciences Program. Students will obtain a degree in mathematics and, upon completing this concentration and meeting any additional requirements of the Louisiana Department of Education, will be eligible for certification in the state of Louisiana as teachers in grades 6-12.

Semester 1
CRITICAL: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.

ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
BASC 2010 Inquiry Approaches to Math and Science Teaching (1)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1)
Total Semester Hours: 16-17

Semester 2
CRITICAL: “C” or better in MATH 1550: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

MATH 1552 Analytic Geometry and Calculus II (4)
BASC 2011 Inquiry-Based Math and Science Lesson Design (1)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1)
Total Semester Hours: 14-13

Semester 3
CRITICAL: “C” or better in MATH 1552: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA; Admission to the College.

EDCI 2500 Knowing and Learning in Mathematics and Science (3)
MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2085 Linear Algebra (3)
General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4
CRITICAL: “C” or better in MATH 2057: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

ENGL 2000 English Composition (3)
EDCI 3550 Classroom Interactions (3)
Choose two courses from the following: (6)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5
CRITICAL: “C” or better in MATH 2085. MATH 2020/MATH 2025/MATH 2030: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

PHIL 2786 Logic, Science and Society (3)
MATH 3002 Mathematics Classroom Presentations (1)
MATH 3355 Probability (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (3)
Approved Elective (3)
Total Semester Hours: 16

Semester 6
MATH 3003 Functions & Modeling (2)
MATH 4005 Geometry (3)
MATH 4031 Advanced Calculus I (3)
BIOL 4005 Science Research Methods (3) or
CHEM 4005 Science Research Methods (3) or
PHYS 4005 Science Research Methods (3)
Social Sciences or Humanities course (3)
Approved Elective (2-1)
Total Semester Hours: 16-15

Semester 7
EDCI 4500 Instructional Models for Mathematics and Science (3)
MATH 4019 Calculus Internship Capstone (1)
MATH 4023 Applied Algebra (3) or
MATH 4181 Elementary Number Theory (3) or
MATH 4200 Abstract Algebra I (3)
General Education course - Arts (3)
Area of Concentration Course (3)

General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16
Approved Elective (2-3)  
**Total Semester Hours: 15-16**

**Semester 8**  
EDCI 4006 Student Teaching in Grades 6-12 Mathematics and Sciences (9)  
EDCI 3136 Reading in the Content Areas (3)  
**Total Semester Hours: 12**  

120 Total Sem. Hrs.

1. To meet the university’s General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:  
   One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202  
   One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1002; CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003; GEOL 1001, GEOL 1002; GEOL 1111 or GEOL 1003; GEOL 2020; PHYS 1201, PHYS 1202; PHYS 2001, PHYS 2002; PHYS 2101, PHYS 2102.  

   Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.  

2. Select three hours from the following: MATH 4024, MATH 4027, MATH 4032, MATH 4036, MATH 4039, MATH 4056, MATH 4065, MATH 4153, MATH 4158, MATH 4171, MATH 4172, MATH 4201, MATH 4325, MATH 4340, MATH 4345, MATH 4700, MATH 4999  

**NOTE:** EDCI 2500 will count as one of the General Education social science courses and PHIL 2786 as one of the approved social science/humanities courses. Students should plan their course work so that the last semester of the senior year can accommodate the 12 hours that are required to be taken concurrently (EDCI 4006 and EDCI 3136).
Secondary Education – Mathematics - Proposed

CRITICAL REQUIREMENTS

SEMESTER 1: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.
SEMESTER 2: “C” or better in MATH 1550: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.
SEMESTER 3: “C” or better in MATH 1552: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA: Admission to the College.
SEMESTER 4: “C” or better in MATH 2057: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.
SEMESTER 5: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

This concentration is part of the Geaux Teach-Math and Sciences Program. Students will obtain a degree in mathematics and, upon completing this concentration and meeting any additional requirements of the Louisiana Department of Education, will be eligible for certification in the state of Louisiana as teachers in grades 6-12.

Semester 1

CRITICAL: “C” or better in ENGL 1001: 2.0 Cumulative, LSU and Semester GPA.

ENGL 1001 English Composition (3)
MATH 1550 Analytic Geometry and Calculus I (5)
BASC 2010 Inquiry Approaches to Math and Science Teaching (1)
First Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (0-1)
Total Semester Hours: 16-17

Semester 2

CRITICAL: “C” or better in MATH 1550: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

MATH 1552 Analytic Geometry and Calculus II (4)
BASC 2011 Inquiry-Based Math and Science Lesson Design (1)
Second Course in Foreign Language Sequence (4)
General Education course - Natural Sciences (3)
Natural Sciences Lab (2-1)
Total Semester Hours: 14-13

Semester 3

CRITICAL: “C” or better in MATH 1552: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA: Admission to the College.

EDCI 2500 Knowing and Learning in Mathematics and Science (3)
MATH 2057 Multidimensional Calculus (3)
MATH 2060 Technology Lab (1)
MATH 2085 Linear Algebra (3)

General Education course - Natural Sciences (3)
General Education course - Humanities (English/honors 2000-level) (3)
Total Semester Hours: 16

Semester 4

CRITICAL: “C” or better in MATH 2057: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

ENGL 2000 English Composition (3)
EDCI 3550 Classroom Interactions (3)
Choose two courses from the following: (6)
MATH 2020 Solving Discrete Problems (3) or
MATH 2025 Integral Transforms and Their Applications (3) or
MATH 2030 Discrete Dynamical Systems (3)
General Education course - Natural Sciences (3)
Total Semester Hours: 15

Semester 5

CRITICAL: “C” or better in MATH 2085, MATH 2020/MATH 2025/MATH 2030: 2.5 Cumulative and LSU GPA: 2.0 Semester GPA.

PHIL 2786 Logic, Science and Society (3)
MATH 3002 Mathematics Classroom Presentations (1)
MATH 3355 Probability (3)
General Education course - Humanities (English/honors 2000-level) (3)
General Education course - Social Sciences (3)
Approved Elective (3)
Total Semester Hours: 16

Semester 6

MATH 3003 Functions & Modeling (2)
MATH 4005 Geometry (3)
MATH 4031 Advanced Calculus I (3)
Biol 4005 Science Research Methods (3) or
CHEM 4005 Science Research Methods (3) or
PHYS 4005 Science Research Methods (3)
Social Sciences or Humanities course (3)
Approved Elective (2-1)
Total Semester Hours: 16-15

Semester 7

EDCI 4500 Instructional Models for Mathematics and Science (3)
MATH 4019 Calculus Internship Capstone (1)
MATH 4023 Applied Algebra (3) or
MATH 4181 Elementary Number Theory (3) or
MATH 4200 Abstract Algebra I (3)
General Education course - Arts (3)
Area of Concentration Course (3)
Approved Elective (2-3)

Total Semester Hours: 15-16

Semester 8
EDCI 4006 Student Teaching in Grades 6-12 Mathematics and Sciences (9)
EDCI 3136 Reading in the Content Areas (3)

Total Semester Hours: 12

120 Total Sem. Hrs.

1. To meet the university’s General Education Natural Sciences requirement and the College of Science’s natural sciences requirement, a mathematics major must take the following:
   1. One two-semester sequence in Biological Sciences: BIOL 1001, BIOL 1002 or BIOL 1201, BIOL 1202
   2. One two-semester sequence in Physical Sciences chosen from the following: ASTR 1101, ASTR 1102; CHEM 1001, CHEM 1002; CHEM 1201, CHEM 1202; GEOL 1001, GEOL 1003, GEOL 1001, GEOL 2020; GEOL 1111, GEOL 1003, GEOL 1111, GEOL 2020; PHYS 1201, PHYS 1202, PHYS 2001, PHYS 2002; PHYS 2110, 2112; PHYS 2110, 2113

Students must also take the two-hour lab requirement corresponding with either the Biological Sciences or Physical Sciences sequence.

2. Select three hours from the following: MATH 4024, MATH 4027, MATH 4032, MATH 4036, MATH 4039, MATH 4056, MATH 4065, MATH 4153, MATH 4158, MATH 4171, MATH 4172, MATH 4201, MATH 4213, MATH 4300, MATH 4345, MATH 4700, MATH 4999

NOTE: EDCI 2500 will count as one of the General Education social science courses and PHIL 2786 as one of the approved social science/humanities courses. Students should plan their course work so that the last semester of the senior year can accommodate the 12 hours that are required to be taken concurrently (EDCI 4006 and EDCI 3136).