MEMORANDUM

TO:                  Debra Jackson, Institutional Effectiveness and Assessment
                     Doris R. Helms, Vice President for Academic Affairs and Provost
                     James F. Barker, President

FROM:               Janice W. Murdoch, Chair, Undergraduate Curriculum Committee

DATE:               April 25, 2011

SUBJECT:            Administrative Approval of Curriculum Items

The Undergraduate Curriculum Committee met on March 4, 2011 to approve the attached curriculum/course changes received in the Office of the Provost, April 25, 2011. The purpose of this memorandum is to respectfully request that you review this information and concur by giving final approval.

APPROVED:

[Signatures of Debra Jackson, Doris R. Helms, James F. Barker]

DEPARTMENT OF THE UNIVERSITY

Clemson University
E101 Martin Hall
Box 245105
Clemson, SC
29634-5105

P 864-656-3942
F 864-656-1303

Attachments
CURRICULUM AND COURSE CHANGE SYSTEM - PRINT CHANGE/DELETE COURSE FORM

X Change a Course - Abbrev & Number: EDSEC-324
Corresponding Lab Course: EDSEC-L-324
Corresponding Honors course: --
  Add Honors course: --
Corresponding Graduate course: --
  Add Graduate course: --
Course Title: PRACTICUM SEC ENGL

Brief Statement of Change:
Need to change the course and lab hours from (1,3) to (2,3). The lecture contact hours need to be changed for this course; we are changing from (1,3) to (2,3).

Last Term taught: 1008
Effective Term: 01/2011

Change Catalog Title:
from: PRACTICUM SEC ENGL
to: PRACTICUM SEC ENGL

Change of Credit:
From: Fixed Credit: 3 (1,3)
To: Fixed Credit: 3 (2,3)

Add cross-listing with the following child course(s):

Delete cross-listing with the following child course(s):

Reverse Parent/Child relationship with:

Change Method of Instruction:
from: A-Lecture Only
to: A-Lecture Only

Change Course Modifier:
from: Pass/Fail Only
to: Pass/Fail Only

From: X Graded
to: A-H (Non-Literature)

Change General Education Designation:
from: English Composition
to: English Composition

from: Oral Communication
to: Oral Communication

from: Mathematics
to: Mathematics

from: Natural Science w/Lab
to: Natural Science w/Lab

from: Creative Inquiry
to: Creative Inquiry

from: Math or Science
to: Math or Science

from: A&H (Literature)
to: A&H (Literature)

from: Social Science
to: Social Science

from: CCA
to: CCA

from: STS
to: STS

Change Catalog Description:
from:
to:

Change Prerequisite(s):
from:
to:

Learning Objectives: Students will be able to

1. Evaluate promising literary texts that enable diverse high school students to
   a. understand literary texts (specifically, American literary texts);
   b. understand informational texts (specifically, American texts);
   c. build vocabulary (specifically within the context of teaching American literature);
   d. develop written communications (specifically related to responses to American literature);
   e. apply skills of inquiry (specifically related to analyzing American literature);
   f. exemplify effective oral communication (specifically related to response to American literature);

2. Create a year-long course outline for teaching literature (especially American) that draws on
   background information about the history and culture of each literary period and that meets the needs
   of diverse learners and at-risk students.

3. Create a defensible rationale for teaching American literature in American high schools that embraces
   a constructivist approach to teaching and learning,

4. Create constructivist unit outlines that introduce students to the culture and history surrounding
   American literary texts (as in a humanities approach)

5. Evaluate teaching and learning in terms of constructivist principles

6. Analyze current theoretical and researched-based literature within the field of English education.

Topical Outline: Introduction (1 hour)
Long Range Planning (1 hour)
Building a Community of Learners (1 hour)
Professional Literature within English Literature (Theory, Research, Classroom-Based Applications) (3 hours)
Engaging Literary Enterprises for Young Adults (Bailey and Kerns) (2 hours)
Bloom's Revised Taxonomy (1 hour)
National and SC English Course Standards (1 hour)
ADEPT (1 hour)
Creating a Rationale for Teaching American Literature (1 hour)
Sample Course Theme: America's Ongoing Quest for Freedom (1 hour)
Review of Model Units with Engaging Literary Enterprises (ELE) (1 hour)
ELE for Pre-Nineteenth Century American Literature (2 hours)
ELE for Romanticism (2 hours)
ELE for Realism (2 hours)
ELE for Naturalism (2 hours)
ELE for Modernism (2 hours)
ELE for Post-World War II American Literature (2 hours)
ELE for African American Literature (2 hours)
ELE for Southern Literature (2 hours)
Final Exam

The lab component of this course requires students to observe and participate 3-hours each week in a school placement over the course of the semester. Students will make observations and develop background on students that is necessary for curricular design.

**Evaluation:** Grades will be determined in the following manner:

- Essay Related to Field-Based Observations 15%
- Student Inventory Administered in Field Experience 15%
- Instructional Resource Palette for Teaching an American Literary Unit 15%
- Outline of an Engaging Literary Enterprise Unit for American Literature 15%
- Rationale for American Literary Unit and Text Selections 15%
- Final Unit Outline for Teachers' Instructional Guide 25%

**Form Originator:** CBEATRI, Beatrice Bailey  **Date Form Created:** 9/27/2010
**Form Last Updated by:** ,  **Date Form Last Updated:** 12/8/2010
**Form Number:** 3444

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**Curriculum and Course Change System - Print Change/Delete Course Form**

**X Change a Course - Abbrev & Number:** ED EL-451

**Corresponding Lab Course:** ED EL-L-451
**Corresponding Honors course:** ED EL-H-451
**Add Honors course:** --
**Corresponding Graduate course:** --
**Add Graduate course:** --
**Course Title:** ELEM METH SCI TCHG

**Brief Statement of Change:**
The Elementary Education program area would like to add a lab fee during the Block Semester for Science Methods to cover the cost of supplies and materials for inquiry-based science investigations.

**Last Term taught:** 1008  **Change Abbrev to:**
**Effective Term:** 01/2011  **Change Number to:**

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**Change of Credit:**
Variable Credit: - (3) (3)  **To:** Fixed Credit: - (3) (3)

**Add cross-listing with the following child course(s):**

**Delete cross-listing with the following child course(s):**

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**Change Catalog Description:**

**Learning Objectives:**
1. The learner will be able to:
   b. Develop standards-based inquiry science lessons using manipulatives.
   c. Conduct an experiment using the principles of scientific inquiry.
   d. Design lessons to accommodate diverse learners
2. The learner will be able to utilize/implement:
   a. Cooperative learning strategies.
   b. The learning cycle in science lessons.
   c. A variety of techniques for evaluation/assessment, including performance-based assessment of science learning.
   d. Appropriate classroom management techniques during hands-on science lessons.
   e. Technology to deliver instruction and to conduct hands-on science investigations.

**Topical Outline:**
- a. Science as Inquiry (1 hour);
- b. Life Science (1 hour);
- c. Earth and Space Science (1 hour);
- d. Physical Science (1 hour);
- e. Science in Personal and Social Perspectives (1 hour);
- f. Science and Technology (1 hour);
- g. Unifying Concepts and Processes (2 hours);
- h. History and Nature of Science (2 hours);
- i. Constructivism (4 hours);
- j. Planning and implementation of inquiry-based activities and lessons through the use of NSES Essential Features of Inquiry, the learning cycle, and the scientific method (6 hours);
k) Essential Features of Inquiry and the learning cycle (6 hours);
l) Effective integration of Technology (6 hours);
m) Methods for evaluating and assessing student learning and teacher practice (4 hours);

**Evaluation:**
- 1 Attendance and Participation 5%
- 2 Process Skills Assessment 23%
- 3 Mini Standards-based Science Unit 47%
- 4 Final Exam 25%

**Form Originator:** MISPPEAR, Melinda Spearman  
**Date Form Created:** 12/1/2010

**Form Last Updated by:** MISPPEAR, Melinda Spearman  
**Date Form Last Updated:** 12/1/2010

**Form Number:** 3685

**Approval**

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Clemson
Curriculum and Course Change System - Print Change/Delete Course Form

X Change a Course - Abbrev & Number: ED EL- 451
Corresponding Lab Course: ED EL-L-451
Corresponding Honors course: ED EL-H-451
.. Add Honors course: --
Corresponding Graduate course: --
.. Add Graduate course: --
Course Title: ELEM METH SCI TCHG

Brief Statement of Change:
The Elementary Education program area would like to add a lab fee during the Block
Semester for Science Methods to cover the cost of supplies and materials for
inquiry-based science investigations.

Last Term taught: 10/8
Effective Term: 05/2011
.. Change Abbrev to:
.. Change Transcript Title: ELEM METH SCI TCHG
.. Change Number to:
.. Change Catalog Title: from: ELEM METH SCI TCHG
to: ELEM METH SCI TCHG
.. Change Transcript Title: from: ELEM METH SCI TCHG
to: ELEM METH SCI TCHG
.. Change of Credit:
  Variable Credit: (-), (-)
  Variable Credit: (-), (-)
.. Change General Education Designation:
  .. Change Prerequisite(s):

Learning Objectives: 1. The learner will be able to:
a. Implement standards-based inquiry science lessons for
   grades 2-6.
b. Develop standards-based inquiry science lessons using
   manipulatives.
c. Conduct an experiment using the principles of scientific
   inquiry.
d. Design lessons to accommodate diverse learners

2. The learner will be able to utilize/implement:
a. Cooperative learning strategies.
b. The learning cycle in science lessons.
c. A variety of techniques for evaluation/assessment, including
   performance-based assessment of science learning.
d. Appropriate classroom management techniques during
   hands-on science lessons.
e. Technology to deliver instruction and to conduct hands-on
   science investigations.

Topical Outline: a) Science as Inquiry (1 hour);
b) Life Science (1 hour);
c) Earth and Space Science (1 hour);
d) Physical Science (1 hour);
e) Science in Personal and Social Perspectives (1 hour);
f) Science and Technology (1 hour);
g) Unifying Concepts and Processes (2 hours);
h) History and Nature of Science (2 hours);
i) Constructivism (4 hours);
j) Planning and implementation of inquiry-based activities and lessons
   through the use of NSES Essential Features of Inquiry, the learning
   cycle, and the scientific method (6 hours);
**Add Major Name:** Science Teaching (Physics)

**Degree:** BA

**Effective Catalog Year:** 2012

**Explanation:** We currently are seeking CHE approval for this and understand that any university approval will be dependent upon CHE approval. This new major is patterned after the recently approved BA in Science Teaching (Biological Sciences and the BA in Science Teaching (Chemistry). Students who complete the BA in Science Teaching (Physics) will receive a double major that includes a BA in Physics.

**Catalog statement:**
The programs leading to a Bachelor of Arts or Bachelor of Science degree in Science Teaching are designed for students planning to teach biological sciences, chemistry, earth sciences, or physical sciences on the secondary school level (grades 9-12). To be recommended for certification, a grade of C or higher is required in all science content courses.

**Form Originator:** MARSHA9, Jeff Marshall
**Date Form Created:** 10/27/2010

**Form Last Updated by:** , **Date Form Last Updated:** 1/19/2011

**Form Number:** 3591

**Approval**

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Bob,
This is the document that you needed. Let me know if anything else is required.

Jeff

-----Original Message-----
From: jking2@clemson.edu [mailto:jking2@clemson.edu]
Sent: Tuesday, January 25, 2011 11:19 PM
To: Robert Green; Jeff Marshall
Cc: PETER BARNES
Subject: Sci Teaching Physics Double BA update approval

Dear Bob and Jeff,

Thanks for the news about the minor updates to the Science Teaching-Physics Double BA program, which was endorsed by the Department of Physics and Astronomy in Fall 2010. Recall that the CoES curriculum committee approved a catalog change for physics adding a pointer to the curriculum (if approved) in the HEHD section of the Undergraduate Announcements.

We've noted the switching of EDF 301 and 335 and the minor modification of the distributed competencies on the gen ed checklist, and regard these simply as small adjustments having no impact on our Department's continued endorsement and support of this important new program.

Thank you for your continued work on the HEHD side of the curriculum process. We look forward to approval of the new degree program.

Best wishes,

Jeremy King, Chair
Curriculum Committee
Department of Physics and Astronomy
Clemson University
Bob and Janie,
Below is the email from Michael LeMahieu in the English Department. He supports our desire to move ENGL 103 to the fall term on the plan of study.

Jeff

From: Michael LeMahieu  
Sent: Wednesday, December 08, 2010 9:55 AM  
To: Jeff Marshall  
Cc: Cynthia Haynes; Lindsey Gillen  
Subject: Re: ENGL 103

Hi Jeff,

Yes, that will be fine. If for some reason the number of double majors increases, we might have to reconsider, but 2-3 per year should not pose a problem.

Yours,  
Mike

Michael LeMahieu  
Assistant Professor  
Associate Chair  
Department of English  
Clemson University

On 12/8/10 9:43 AM, "Jeff Marshall" <MARSHA9@clemson.edu> wrote:
Hi Michael,
We have proposed a new double major in physics and science education—physics. On the proposed plan of study, we have ENGL 103 slated for fall of freshman year. This agrees with CES’s order of classes, but HEHD students usually takes this class in spring. This is a request to allow the double majors (approximately 2-3 per year) to take ENGL 103 in the fall of freshman
year. FYI, we did the same thing last year with the new double major in Chemistry and Science Education—Chemistry. Please confirm whether this exception will be allowed or not. An email from your department should be sufficient documentation.

Many thanks,

Jeff

Jeff C. Marshall
Co-Director, Inquiry in Motion Institute
Associate Professor, Science Education, Clemson University
418G Tillman Hall, Clemson, SC 29634-0705
Phone: 864.656.2059 Fax: 864.656.1322
www.clemson.edu/iim
### Specific General Education Requirements

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<th>Requirement</th>
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<th>Select from Restricted Gen Ed List</th>
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*Departments may specify a cluster of courses to meet the Oral communication competency but must include a plan for implementation and assessment in the following textbook: Oral communication competency is met in the following ways:
1. Taking one of the oral communication classes from the general education selection of classes.
2. EDSEC 327 and 427 where students are required to present and critique science lessons.
3. And, finally EDSEC 447 and 457 require that students regularly and competently communicate with mentor teachers, university supervisors, school administration, parents, and secondary level students.

Generally speaking, their competency is reflected in the course grades earned in each of the referenced classes. In the communication course, satisfactorily completing oral communication assignments are the key assessments for the course grade. In the junior and senior level course, assessments begin to track competency through formative assessments that allow students to interact with secondary level students at the class and individual (tutoring) level. In student teaching, a significant portion of the student teaching final rubric necessitates that students are competent in clearly conveying instruction and interacting at a personal level with students and mentors.

### Distributed Competencies

The faculties of each degree program will decide the most appropriate ways to integrate learning experiences in each of the areas below. Quantification in terms of credit hours is avoided in favor of the assumption that faculties will want to place a serious effort in each area and distribute this effort to a significant degree throughout their curricula.

### Ethical Judgement Integration Plan - Address competencies, implementation, and assessment:

1. ED 105: Class meeting on Professional Ethics
2. ED 301: Students examine ethical dimensions of contemporary educational issues as well as demonstrate a capacity to participate in ethical deliberation.
3. ED 302:
   a. Bias and validity issues in testing (both teacher-made tests and standardized testing); case studies are used.
   b. Consistency and fairness is classroom management (discipline), including reflection on future management style.
4. ED 315: Discussion of laws and individual rights related to intellectual property and copyright of digital information
5. ED 335:
   a. Prospective teachers learn how to structure a classroom and respond to students in ways that a) treat students with respect and without any favoritism, b) establish clear routines, rules and consequences in the classroom so that students feel secure and protected in the classroom (and thus are in the best position to learn), c) provide students full-time instruction, never putting students in the position of having to teach themselves without the guidance of the teacher.
   b. Prospective teachers learn that they have an ethical obligation to know their subject matter, prepare for each class, and be committed to professional standards and institutional objectives. How measured: paper
5. EDSEC 427 (teaching methods), 447 (student teaching) and 457 (capstone seminar).
   a. Preservice teachers are given guidelines for working with adolescent minors in the public schools as they approach their 45-hour clinical experiences requirement. This includes maintaining a professional attitude and demeanor, and avoiding any type of friendship or peer relationship with high school students, especially that of a social nature.
   b. As students approach their student teaching they are given guidelines for legal and ethical responsibilities with the work they are to do with high school students.

Faculty that teach relevant courses will use evaluation data to make needed course revisions that will increase students’ Ethical Judgement Integration competency.

### Communication Integration Plan - Address competencies, implementation, and assessment:

Communications Integration permeates the entire dual major in both Physics and Secondary Education—Physics. Teacher candidates complete the general oral communications competencies through university approved general education required oral communications class. Students learn to write and communicate critically and clearly about science concepts and educational issues as they write for various audiences within their upper level courses, EDSEC 327 (the Junior Practicum in Secondary Science Education), EDSEC 427 (Teaching Secondary Science), EDSEC 457 (Secondary Science Capstone Seminar) and BIOSEC 482 (Advanced Laboratory Techniques). In each EDSEC course, students write and present their work among their peers and professors through written and oral presentations. For example, during the EDSEC 427 semester, students regularly present, observe, critique, science lessons that they and/or their peers have taught. During this semester and during student teaching, students are also asked to create unit plans, which require writing, teaching, and then reflecting over the lesson plans. During the EDSEC 457 Capstone course students are asked to collect various assessments they conducted during their student-teaching internship and write reflections on how their instruction has led to student learning and growth. All the aforementioned requirements align with our requirements needed for NCATE accreditation in science. Finally, one of the culminating activities of the
seminar capstone is for students to present their teaching portfolio, which is aligned to the ADEPT certification process, to their university supervisor and mentor teacher.

Faculty that teach relevant courses will use evaluation data to make needed course revisions that will increase students’ Communication competency.

Critical Thinking Integration Plan - Address competencies, implementation, and assessment:
1. ED 105: Developing reflective writing skills
2. EDF 301: Students critically examine contemporary controversial educational issues such as religion in the schools; socioeconomic status and educational opportunity; race, ethnicity, gender and educational opportunity; and current educational reform efforts. In the process, students (1) summarize, analyze, and evaluate text, (2) acquire and analyze information to determine its quality and utility and (3) recognize parallels between and among disciplines foundational to educational studies and apply knowledge, skills, or abilities derived from those disciplines.
3. EDF 302
   a. Integration of theories of learning, motivation, classroom management, and assessment.
   b. Analyze classroom-based case studies for problems and possible solutions (with justification).
4. EDF 315
   a. Textual and graphic info from web chosen for quality and utility within WebQuest assignment
   b. Peer evaluation of quality and utility of student-produced videos using a provided rubric.
   c. Determination of usability of digital photos based on quality, size, and other characteristics that affect usability.
5. EDF 335
   Prospective teachers learn that the key to “critical thinking” is thorough and well-integrated factual knowledge about one’s discipline. Specifically, they learn that current research in cognitive psychology (e.g., Anderson, 1996) shows that we build procedural knowledge from declarative knowledge. Later- and with repetition and practice --the procedural knowledge may be encoded as factual knowledge and become a building block for new procedural knowledge.
6. EDSEC 427 Science Teaching Methods
   Preservice science teachers conduct critical analyses of current instructional science teaching practices and those recommended by the research on effective learning. They also conduct critical analyses of advantages and disadvantages of model science teaching lessons used by the instructor.
7. EDSEC 457 Secondary Science Capstone Seminar
   As preservice science teachers assemble their final portfolio, they reflect on their career development and propose a path for their personal professional development.
8. Within the science courses that students take in this program, the scientific processes, which involve formulating questions, making hypotheses, gathering data, analyzing data, and making conclusions, are key components.

Faculty that teach relevant courses will use evaluation data to make needed course revisions that will increase students’ Critical Thinking competency.
# Proposed Curriculum Plan 2012-13

## Freshman Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 101 General Chemistry</td>
<td>CH 102 General Chemistry</td>
</tr>
<tr>
<td>MTHSC 106 Calculus of One Variable I</td>
<td>Arts and Humanities (Non-Lit.) Requirement¹</td>
</tr>
<tr>
<td>ASTR 105 Physics of the universe</td>
<td>MTHSC 108 Calculus of One Variable II</td>
</tr>
<tr>
<td>ENGL 103 Accelerated Composition</td>
<td>PHYS 122 Physics with Calculus I</td>
</tr>
<tr>
<td>Foreign Language¹</td>
<td>PHYS 124 Physics with Calculus II Lab</td>
</tr>
<tr>
<td><strong>Total Semester Hrs.</strong></td>
<td><strong>Total Semester Hrs.</strong></td>
</tr>
<tr>
<td></td>
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</table>

## Sophomore Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTHSC 206 Calculus of Several Variables</td>
<td>MTHSC 208 Ord. Diff Eq</td>
</tr>
<tr>
<td>PHYS 221 with Calculus II</td>
<td>PHYS 222 Physics with Calculus III</td>
</tr>
<tr>
<td>PHYS 223 with Calculus II Lab.</td>
<td>PHYS 224 Physics Lab III</td>
</tr>
<tr>
<td>ED 105 Orientation to Education</td>
<td>ED F 301 Principles of American Education</td>
</tr>
<tr>
<td>HIST 122 or 124¹</td>
<td>BIOL 111/ (104/106) Principles of Biology I</td>
</tr>
<tr>
<td>BIOL 110/ (103/105) Principles of Biology I</td>
<td><strong>Total Semester Hrs. 15/16</strong></td>
</tr>
<tr>
<td><strong>Total Semester Hrs.</strong></td>
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<tr>
<td></td>
<td>17/18</td>
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</table>

## Junior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSEC 327 Practicum in Secondary Science</td>
<td>ED F 302 Educational Psychology</td>
</tr>
<tr>
<td>CH 331 Physical Chemistry</td>
<td>ED F 335 Adolescent Growth &amp; Development</td>
</tr>
<tr>
<td>MTHSC 434 or PHYS 311</td>
<td>PHYS 441 Electromagnetics I</td>
</tr>
<tr>
<td>PHYS 321 Mechanics I</td>
<td>Oral Communication Requirement¹</td>
</tr>
<tr>
<td>PHYS 325 Modern Lab</td>
<td>BIOSC 482 Laboratory Tech. for Teaching Sci.</td>
</tr>
<tr>
<td>ED F 315 Tech Skills for Learning</td>
<td><strong>Total Semester Hrs.</strong></td>
</tr>
<tr>
<td><strong>Total Semester Hrs.</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

## Senior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSEC 427 Teaching Secondary Science¹</td>
<td>ED SP 370 Introduction to Special Education</td>
</tr>
<tr>
<td>READ 498 Secondary Content Area Reading²</td>
<td>EDSEC 447 Teaching Intern. in Sec. Sci.³</td>
</tr>
<tr>
<td>GEOG 103 ⁵</td>
<td>EDSEC 457 Sec. Science Capstone Sem.⁵</td>
</tr>
<tr>
<td>Arts and Humanities (Literature) Requirement⁷</td>
<td><strong>Total Semester Hrs. 15</strong></td>
</tr>
<tr>
<td>PHYS 455 Quantum Mechanics I</td>
<td></td>
</tr>
<tr>
<td><strong>Total Semester Hrs.</strong></td>
<td><strong>TOTAL HOURS—128-130</strong></td>
</tr>
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</tbody>
</table>

¹ Two Semesters (through 202) in any modern foreign language or American Sign Language are required.
² See General Education Requirements.
³ Any course(s) that satisfy BOTH a Social Science and an STS General Education Requirement also accepted.
⁴ See General Education Requirements.
⁵ To be taken the semester prior to EDSEC 447 and 457; EDSEC 427 and READ 498 must be taken concurrently.
⁶ Any course(s) that satisfy BOTH a Social Science and a Cross-Cultural Awareness General Education Requirement also accepted.
⁷ See General Education Requirements.
⁸ EDSEC 447 and EDSEC 457 must be taken concurrently and are offered only during spring.