After the Foundational Studies Program has approved a course, departments will continue through the regular department and college procedures. The approved course should be submitted to the University Curriculum Committee by October 1, 2011.

Table of Contents (Click title to go to that section)

Instructions: ............................................................................................................................................................ 1
Part I. Course Information...................................................................................................................................... 1
Part II. Syllabus Statement.....................................................................................................................................2
Part III. Design for Accessibility........................................................................................................................ 2
Part IV. Evidence of Quality Course Design........................................................................................................ 3
Course Design Table ..............................................................................................................................................4

Instructions:

1. Complete one form per course.
2. Attach this Foundational Studies Course Application Form to the back of the University Curriculum Committee “Request for Curriculum Action” form. Both forms should be submitted to the Foundational Studies Program Office by August 19, 2011.

Part I. Course Information

Course Number and Title: PHYS 211: Physics I with Calculus

Type of Foundational Studies Course – (Choose One):
[ ] DLS (Disciplinary Lens – Social Science)
[ ] DLL (Disciplinary Lens – Literature and Humanities)
[ ] DLV (Disciplinary Lens – Visual and Performing Arts)
[ ] DLM (Disciplinary Lens – Mathematics)
[x] DLN (Disciplinary Lens – Natural, Physical, and Applied Sciences)
   Includes Lab: [x] Yes [ ] No
[ ] CID (Communication in the Discipline)
[ ] FF (Finishing Foundations)

Delivery Format(s) – (Check all that apply):
[x] Face to Face
[ ] Fully Online
[ ] Hybrid
[ ] Concurrent Enrollment
[ ] Other (briefly describe):
Part II. Syllabus Statement

Boise State's Foundational Studies Program provides undergraduates with a broad-based education that spans the entire university experience. PHYS 211 satisfies 5 credits of the Foundational Studies Program's Disciplinary Lens – Natural, Physical and Applied Science requirements. It supports the following University Learning Outcomes, along with a variety of other course-specific goals.

ULO 8. Apply knowledge and methods characteristic of scientific inquiry to think critically about and solve theoretical and practical problems about physical structures and processes.

*PHYS 211: Physics I with Calculus* is designed to help students understand the ways in which the established laws of nature allow us to understand and predict future behavior of physical systems, as well as using scientific reasoning to acquire and analyze data. This course helps to achieve the goals of the Foundational Studies Program by focusing on the following course learning outcomes.

After successful completion of this course, you will be able to:

- Solve problems using Newton’s Laws and Conservation Principles to predict future behaviors in motion from a set of initial conditions.
- Apply Laws of Force and Energy to solve common real world problems.
- Assess experimental data to verify or disprove a particular hypothesis.
- Represent physical problems using mathematical notation.
- Understand how the laws of physics have shaped technology and the environment.
- Effectively communicate experimental procedure as well as the underlying theory.

Part III. Design for Accessibility

In the space below, briefly describe plans for providing access to course materials and activities (or equivalent alternatives) to all students in adherence with the Americans with Disabilities Act. Although these plans may vary from instructor to instructor, the descriptions provided below should be representative of intended departmental and instructor practices. (See example statements appended to this form.)

*PHYS 211: Physics I with Calculus*: All instructors are committed to working with the university's Disability Resource Center (DRC) to meet the needs of students with documented disabilities. Students that feel they may need accommodations will be met with privately, and steered to the DRC for further coordination. Approved accommodations may include (but are not limited to): checking pdf reading assignments for readability by a screen reader, videos chosen for use in the course will be those that have been close-captioned by the content producer to provide access to students with hearing impairment, graphics in PowerPoint presentations used in class lectures will be verbally described to students on an as-needed basis, providing textual descriptions accessible by screen readers to images used on the course website, extra time on tests and oral examinations, or other accommodations.
**Part IV. Evidence of Quality Course Design**

Please use the table below (column headings for this table should not be changed) to provide evidence that the course has been carefully designed and is clearly aligned with Foundational Studies Program desired ULOs. All sections of the course should share similar student learning outcomes. Teaching and Learning Activities and Assessment Methods may vary from instructor to instructor. Please use the table to report representative strategies that may be used. Assessment activities used for reporting to the Foundational Studies Program should be consistent across different sections of the course.

Please see below.
<table>
<thead>
<tr>
<th>Foundation ULO 8 Criteria</th>
<th>Foundation ULO 8 Notions of Exemplary Work</th>
<th>Course Learning Outcomes: By the end of this course, each student should be able to…</th>
<th>Assessment Method: Evidence of Student Learning</th>
<th>Planned Teaching &amp; Learning Activities / Pedagogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULO 8.1: Process of Inquiry and Analysis in Response to Evidence or Observation</td>
<td>Skillfully and thoroughly formulates a research question or testable hypothesis</td>
<td>Assess experimental data to verify or disprove a particular hypothesis</td>
<td>Lab report featuring a testable hypothesis and conclusion based on experimental evidence.</td>
<td>Weekly laboratory exercises in which students gather and interpret data</td>
</tr>
<tr>
<td></td>
<td>Constructs model to test evidence and observations</td>
<td>Interpret and analyze graphs and plots</td>
<td>Will be assessed using a rubric-based scheme measuring the strength of correlation between data and conclusion.</td>
<td>Interactive lecture demonstrations in which students make a hypothesis, then comment on that hypothesis following data acquisition</td>
</tr>
<tr>
<td></td>
<td>Skillfully uses model to either confirm existing explanations or formulate new hypotheses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Boise State University
Foundational Studies Course
Spring 2014

Course Number and Title: PHYS 211: Physics I with Calculus

Course Design Table
<table>
<thead>
<tr>
<th>Foundation ULO 8 Criteria</th>
<th>Foundation ULO 8 Notions of Exemplary Work</th>
<th>Course Learning Outcomes: By the end of this course, each student should be able to...</th>
<th>Assessment Method: Evidence of Student Learning</th>
<th>Planned Teaching &amp; Learning Activities / Pedagogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULO 8.2: Understanding of Knowledge and Inquiry</td>
<td>Clearly understands the difference between evidence (data) and explanation (theory)</td>
<td>Solve simple problems using Newton’s Laws and Conservation Principles (theory) to predict future behaviors in motion from a set of initial conditions (evidence)</td>
<td>Multiple choice exam questions ranging from low-level to high-level critical thinking</td>
<td>Daily clicker questions that address students pre-conceived notions about real-world problems</td>
</tr>
<tr>
<td></td>
<td>Is able to connect evidence &amp; explanation to build an argument</td>
<td>Apply laws of Force and Energy to solve common real world problems</td>
<td>Open-ended written exercises answering questions about real-world problems in mechanics; to be assessed using a rubric that gauges the ability to apply the concepts of Force and Energy to real-world problems</td>
<td>Daily clicker questions in which the class can collaborate on simple problems in mechanics</td>
</tr>
<tr>
<td></td>
<td>* Understands the role of these kinds of arguments in building knowledge in the discipline</td>
<td></td>
<td></td>
<td>Lecture delivered material including worked example problems</td>
</tr>
<tr>
<td>ULO 8.3: Communication of Scientific and/or Technological Understandings</td>
<td>Produces clear, accurate, well-organized written and oral communications about scientific and technological understandings</td>
<td>Represent physical problems in mechanics using mathematical notation</td>
<td>Written lab report that summarizes a particular experimental procedure with its underlying theory</td>
<td>Lecture delivered material including worked example problems</td>
</tr>
<tr>
<td></td>
<td>* Use of scientific language, representational tools, and notation covered in the course is skillful.</td>
<td>Effectively communicate experimental procedure as well as its underlying theory</td>
<td>Open ended written exercises in which abstract problems must be modeled using standard mathematical notation</td>
<td>In-class discussions in which students brainstorm methods to model abstract problems in mathematical form</td>
</tr>
<tr>
<td>Foundation ULO 8 Criteria</td>
<td>Foundation ULO 8 Notions of Exemplary Work</td>
<td>Course Learning Outcomes: By the end of this course, each student should be able to…</td>
<td>Assessment Method: Evidence of Student Learning</td>
<td>Planned Teaching &amp; Learning Activities / Pedagogy</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>ULO 8.4: Understanding of interactions of science and technology with humans and environment</td>
<td>Skillfully assesses the potential connection of scientific and/or technological developments to humans and the environment</td>
<td>Understand how the laws of physics have shaped technology and the environment</td>
<td>Specific homework problems in which students must express understanding of energy loss in thermodynamic cycles, linking the phenomenon with its environmental impact</td>
<td>In-class discussions and collaborative problem solving where students will explore the role of the energy conservation principle and its impact on modern society and technology</td>
</tr>
</tbody>
</table>

5-16-2013

Foundational Studies Program Director Signature

Date