Boise State University
Foundational Studies Program Course Application Form
Due to the Foundational Studies Program by August 19, 2011

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.

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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: STEM-ED 220 Perspectives on Science and Mathematics

Type of Foundational Studies Course – (Choose One):

[ ] DLS (Disciplinary Lens – Social Science)
[x] DLL (Disciplinary Lens – Literature and Humanities)
[ ] DLV (Disciplinary Lens – Visual and Performing Arts)
[ ] DLM (Disciplinary Lens – Mathematics)
[ ] DLN (Disciplinary Lens – Natural, Physical, and Applied Sciences)

- Includes Lab: [ ] 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):
Note: The STEM-ED prefix is for mathematics and science education. The Colleges of Education and Arts and Science will share responsibility for these courses as part of the IDoTeach program, which prepares secondary mathematics and science teachers.

Part II. Syllabus Statement:

In the space below, include the syllabus statement for this course which will appear on the first page of the syllabus for each section of this course. (Template and examples are appended to this application form.)

Boise State's Foundational Studies Program provides undergraduates with a broad-based education that spans the entire university experience. STEM-ED 220: Perspectives on Science and Mathematics satisfies three credits of the Foundational Studies Program Disciplinary Lens-Literature and Humanities (DL-L) requirements. It supports the following University Learning Outcome, along with a variety of other course-specific goals.

10. Apply knowledge and the methods of inquiry characteristic of literature and other humanities disciplines to interpret and produce texts expressive of the human condition.

Perspectives on Science and Mathematics is a course in the philosophy and history of science and mathematics that is designed to introduce students to the conceptual and cultural structures that underlie major developments in science and mathematics, and to apply this understanding to cognitive development, cultural perceptions, and educational implications.

By the end of the course students will be able to:

- Read an analyze historical texts detailing scientific and mathematical developments
- Describe the historical development of aspects of science and mathematics relevant to future teachers.
- Analyze the history and content of evolutionary theory from several perspectives.
- Express ideas and opinions clearly and effectively using a formal writing style.
- Discuss ideas, form opinions, and present positions cogently and articulately.
- Develop skills in searching for, retrieving, and evaluating the provenance and reliability of, source materials, on- and offline, including specific resources available to teachers.
- Integrate approaches and material learned in the course with independent research and science or math content to design middle and high school science and math lessons.
- Reflect on and critique their work and the work of others.

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.)

The instructor will work with the Disabilities Resource Center to provide reasonable accommodations to students upon request. Students making such requests are required to provide documentation from the Disability Resource Center, located in room 114 of the Administration Building.
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.

Part V. Additional Justification (Optional):

If the brief justification provided to the University Curriculum Committee in the proposal to accompany the “Request for Curriculum Action” is not sufficient to make the case for including the course in the Foundational Studies Program, additional (optional) narrative can be added here.

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Course will be taught by a philosopher (from the Philosophy Department) with interest and expertise in the history and philosophy of math and science</td>
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<tr>
<td>2</td>
<td>Enrollment will be 35 with 25 seats for the IDoTeach students and 10 for general education</td>
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<tr>
<td>3</td>
<td>Registration will be with permission of instructor</td>
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<tr>
<td>4</td>
<td>Priority for registration will be given to the IDoTeach students</td>
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<tr>
<td>5</td>
<td>Additional seats for general education at no cost</td>
</tr>
<tr>
<td>6</td>
<td>The prerequisites - none required if not in the IDoTeach program</td>
</tr>
<tr>
<td>7</td>
<td>Serves the STEM departments that issue degrees - but is not part of the STEM departments - IDoTeach is an independent entity providing courses to the STEM teacher preparation degree programs</td>
</tr>
</tbody>
</table>

Review Committee Checklist:

- Syllabus Statement - statement introduces the student to the purpose and role of the course in the Foundational Studies Program curriculum.
- An appropriate number of Course Learning Outcomes are specified for the course and are clearly designed to support the Foundational Studies Program ULOs.
- Course Learning Outcomes are appropriately designed for level of the course and address both content mastery and skill-based outcomes.
- The types and numbers of assessments planned for the course are appropriate for measuring the content or skills being assessed
- Course learning activities are likely to promote the achievement of the stated outcomes
- Course design and materials have considered best practices for accessibility to course materials and ideas by all students (e.g., alternatives to auditory and visual content)

Feedback from Review Committee:

The Colleges of Education and Arts and Science are asked to monitor accessibility to this DLS course for nonmajors in accordance with the philosophy of the Foundational Studies Program Disciplinary Lens courses being accessible to the general student population.
<table>
<thead>
<tr>
<th>Foundational Studies Program Director Signature</th>
<th>Date</th>
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Electronically signed by Vicki Stieha,
Director, Foundational Studies Program
Boise State University

CERTIFIED FOR APPROVAL 9-8-2011.
Course Number and Title: STEM-ED 220 Perspectives on Science and Mathematics

### Course Design Table

<table>
<thead>
<tr>
<th>Foundation ULO 10 Criteria</th>
<th>Foundation ULO 10 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>
</table>
| ULO 10: Critical reading skills within the discipline | • Skillfully uses disciplinary tools and vocabulary appropriate for the course  
• Accurately comprehends appropriate texts  
• Convincingly interprets appropriate texts  
• Insightfully analyzes assigned texts | Develop skills in searching for, retrieving, and evaluating the provenance and reliability of, source materials, on- and offline. Reading and reflecting on accounts of scientific and mathematical developments including historical text and research on the related historical events. | • Reflections and other writings  
• In-class discussions | • Interactive demonstration of library research techniques |
| ULO 10: Writing and/or speaking within the discipline | • Articulates complex ideas in clear and coherent language appropriate to the discipline  
• Demonstrates exemplary skill with grammar and style appropriate for the course | • Express ideas and opinions clearly and effectively using a formal writing style.  
• Discuss ideas and opinions cogently and articulately. | • Formal presentations in class  
• Short writing assignments | • Student presentations  
• Class discussions |
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<td>ULO 10: Reasoning within the discipline</td>
<td>• Demonstrate a high level of skill in logical reasoning in written and oral work appropriate for the course&lt;br&gt;• Identify important underlying assumptions&lt;br&gt;• Distinguishes pertinent facts from opinions&lt;br&gt;• Differentiates claims from reasons&lt;br&gt;• Arranges relevant evidence in concise and clear language appropriate for the course</td>
<td>• Integrate approaches and material learned in the course with independent research on science or math content that is common to K-12 science and math curriculum and is essential STEM knowledge for understanding and deciding on many societal issues.</td>
<td>• Reflections and other writings&lt;br&gt;• Presentations&lt;br&gt;• Papers or multimedia products&lt;br&gt;• Feedback to peers on their presentations</td>
<td>• Student presentations&lt;br&gt;• Small-group work</td>
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<td>ULO 10: Cultural, historical, conceptual, and linguistic awareness</td>
<td>• Exhibits awareness of and sensitivity to human values by demonstrating knowledge and appreciation of cultural, historical, conceptual or linguistic differences&lt;br&gt;• Explain one’s own cultural perspectives make meaningful comparisons with the cultural perspectives of others</td>
<td>• Analyze the history and content of evolutionary theory from several perspectives.&lt;br&gt;• Describe the historical development of aspects of science and mathematics relevant to future teachers.</td>
<td>• Quizzes/exams&lt;br&gt;• In-class discussions</td>
<td>• Short lectures&lt;br&gt;• Class discussions</td>
</tr>
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<td>Planned Teaching &amp; Learning Activities / Pedagogy</td>
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| ULO 10: Personal development | • Responsibly entertain and evaluate views that differ from one’s own  
• Actively explore and navigate ambiguity and difference  
• Ask probing questions relevant to the discipline  
• Approach problems imaginatively and creatively | • Reflect on and critique their own work and the work of others.  
• Reflections and other writings  
• Feedback to peers on lessons | • Small-group work  
• Class discussions |