SENATE COMMITTEE ON CURRICULAR AFFAIRS
COURSE SUBMISSION AND CONSULTATION FORM

Principal Faculty Member(s) Proposing Course

<table>
<thead>
<tr>
<th>Name</th>
<th>User ID</th>
<th>College</th>
<th>Department</th>
</tr>
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<tbody>
<tr>
<td>SCOTT SMITH</td>
<td>STS12</td>
<td>Liberal Arts (LA)</td>
<td>Not Available</td>
</tr>
<tr>
<td>JAMES HOWELL</td>
<td>JEH37</td>
<td>Science (SC)</td>
<td>Not Available</td>
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</tbody>
</table>

Academic Home: Liberal Arts (LA)
Type of Proposal: Add

Message for Reviewers:
Course Designation
(ENGL 142N) Science in Literature

Course Information
Cross-Listed Courses:
SC 142N(SC)
Prerequisites:
Corequisites:
Concurrents:
Recommended Preparations:

Abbreviated Title: Science in Lit
Discipline: General Education
Course Listing: Inter-Domain

Special categories for Undergraduate (001-499) courses

Foundations
- Writing/Speaking (GWS)
- Quantification (GQ)

Knowledge Domains
- Health & Wellness (GHW)
- Natural Sciences (GN)
- Arts (GA)
- Humanities (GH)

Additional Designations
- Bachelor of Arts
- International Cultures (IL)
- United States Cultures (US)
- Honors Course
- Common course number - x94, x95, x96, x97, x99
- Writing Across the Curriculum
First-Year Engagement Program

[Checkboxes for the special categories are not shown in the natural text representation.]
Course Outline

A brief outline or overview of the course content:
An interdisciplinary exploration of the shaping and reflection of public anxieties about science through its portrayals in literature and culture.

A listing of the major topics to be covered with an approximate length of time allotted for their discussion:
The course has a modular design, to facilitate adaptation by different instructors across campuses.
Introduction: science, literature, culture (1 week). Discussion of the knowledge domains of science and the humanities, with attention to methodologies, rhetorical practice, and perceptions of social/cultural value.
3 units build around different science topics, paired with literature and other texts, with each unit running for 3-4 weeks (some topics might include evolution, climate change, biotechnology, nuclear weapons and energy, neuropharmacology, and so on). Each unit will consider the presentation of scientists and scientific research in assigned texts (fiction and nonfiction), communicate basic scientific content and principles appropriate to the selected science topic, discuss the ethics and applications of research, and analyze potential conversations between and across the sciences and humanities.
Final conclusions and synthesis (1 week)

Course Description:
The course explores two streams in parallel. Students will examine selected historic landmarks in science (e.g. evolution, atomic energy/weapons, climate change, biotechnology), with a focus on common misconceptions about the facts and practice of science. The course will also examine the development of literary and popular portrayals of science and scientists in their political, economic, social and cultural contexts, paired to these particular scientific developments. By considering past and current scientific problems, students will refine their quantitative and analytical skills. By considering scientific writing, novels, short stories, graphic novels, cinema, poetry, and other forms, students will refine their critical and reflective writing and speaking about both the rhetorical and discursive practices of science writing, and the social and cultural impact of literature in popular understandings of science.

The name(s) of the faculty member(s) responsible for the development of the course:
- Name: JAMES HOWELL (JEH37)
  Title:
  Phone:
  Address:
  Campus: UP
- Name: SCOTT SMITH (STS12)
  Title:
  Phone:
  Address:
  Campus: UP
Course Justification

Instructional, Educational, and Course Objectives:
This section should define what the student is expected to learn and what skills the student will develop.
Students will conduct integrated discussion of scientific ideas and their cultural and social reflection in literature. These discussions will be formal and informal, written and oral.
Students will develop textual, visual, health, scientific, aesthetic, and historical literacies by exploring texts including novels, short stories and novellas, graphic novels, films, poetry, memoir, scientific journalism, and/or science textbooks.
Students will develop critical and analytical thinking skills by evaluating competing scientific, ethical, and literary/cultural viewpoints over a range of topics.
Students will synthesize knowledge encompassing scientific and cultural ideas, across multiple historical periods, and grapple with extrapolating these analyses to the near and far future.
Students will articulate and critique their own values with respect to the ethical issues raised by discussion topics as illuminated by assigned texts.

Evaluation Methods:
Include a statement that explains how the achievement of the educational objective identified above will be assessed.
The procedures for determining students' grades should be specifically identified.
A proportion of the grade will be earned from active participation (40%). The majority of the grade will be based upon assignments in which students explore course ideas in writing (60%).
Participation will consist of weekly class discussions, regular small-group work, and a group presentation. Students will be evaluated according to the frequency and quality of their contribution to these discussions, with attention to clarity of expression, evidence of creative and critical thinking, and consideration of historical and cultural contexts. Students will also articulate and critique their own values and assumptions about science and scientific research, as well as consider critically the ethics of scientific research and applications. In the process, students will assess competing views as they manifest across different discourses of the sciences and humanities.
Writing assignments include incidental writings (very brief written responses to prompts during class meetings, at approximately 100-150 words), short responses (reflective analyses written outside of class, at approximately 250-300 words), and a term paper (a longer reflective analysis of one topic of the student's choice, at 1500 words). These different assignments will be assessed for effective communication and articulation of argument, and for the integrated discussion of scientific principles as they are expressed, reflected, and/or critiqued across various forms of literature. The course includes a range of writing scenarios (short informal writings completed in class, short responses to assigned prompts completed outside of class, and a term paper) in order to model different stages of the writing and thinking process.

Relationship/Linkage of Course to Other Courses:
This statement should relate the course to existing or proposed new courses. It should provide a rationale for the level of instruction, for any prerequisites that may be specified, or for the course's role as a prerequisite for other courses.
This course bears some similarities to ENGL 233 (Chemistry and Literature), but is more general and flexible in its contents. As a course that explores intersections between the sciences and the humanities, it also relates to courses such as ENGL 191 (Science Fiction) ENGL 416 (Science Writing), as well as course content in other areas, including those within the Bioethics and Medical Humanities minor.

Relationship of Course to Major, Option, Minor, or General Education:
This statement should explain how the course will contribute to the major, option, or minor and indicate how it may function as a service course for other departments.
The course is designed as a inter-domain General Education course.

A description of any special facilities:
None.
A tech classroom is recommended.

Frequency of Offering and Enrollment:
Every one or two years, with a target enrollment of 30 students.

Alignment with General Education Objectives
- EFFECTIVE COMMUNICATION – the ability to exchange information and ideas in oral, written, and visual form in ways that allow for informed and persuasive discourse that builds trust and respect among those engaged in that exchange, and helps create environments where creative ideas and problem-solving flourish.
- KEY LITERACIES – the ability to identify, interpret, create, communicate and compute using materials in a variety of media and contexts. Literacy acquired in multiple areas, such as textual, quantitative, information/technology, health, intercultural, historical, aesthetic, linguistic (world languages), and scientific, enables individuals to achieve their goals, to develop their knowledge and potential, to lead healthy and productive lives, and to participate fully in their community and wider society.
- CRITICAL AND ANALYTICAL THINKING – the habit of mind characterized by comprehensive exploration of issues,
Students will critically evaluate a range of texts and media through collaborative class discussion, followed by occasional short exposure to unfamiliar material that challenges their curiosity and stretches their intellectual range. Ethical dimensions within the disciplines of the humanities. Reasoned responses in inquiry in other areas.

**GH Criteria**

- Explain the methods of inquiry in humanities fields and describe how the contributions of these fields complement inquiry in other areas.
- Demonstrate competence in critical thinking about topics and texts in the humanities through clear and well-reasoned responses.
- Critically evaluate texts in the humanities—whether verbal, visual, or digital—and identify and explain moral or ethical dimensions within the disciplines of the humanities.
- Demonstrate knowledge of major cultural currents, issues, and developments through time, including evidence of exposure to unfamiliar material that challenges their curiosity and stretches their intellectual range.
- Become familiar with groups, individuals, ideas, or events that have influenced the experiences and values of different communities.

What components of the course will help students achieve the domain criteria selected above?

Students will critically evaluate a range of texts and media through collaborative class discussion, followed by occasional short...
Discussion and analysis of texts will also selected topics that integrate methods, issues, and/or based explanations of natural phenomena in instructor course, with one instructor from the sciences and one from the humanities sharing level. Domain course is approved for two Knowledge Domains, it will be level collection (recalling and explaining facts and concepts within physics, chemistry, and biology) and high- level.

Describe the assessments that will be used to determine students' ability to apply integrative thinking. (Possible examples: biotechnology in agriculture and medicine, mitigation of anthropogenic climate change.) A majority of activities and assessments will (1) require students to critically evaluate the social benefits, unintended consequences, and practical limitations of various contemporary applications of science, and/or (2) extrapolate to plausible future scenarios, currently speculative, and consider the relevant social and ethical issues critically. (Possible examples: biotechnology in agriculture and medicine, mitigation of anthropogenic climate change.)

Integrative Studies

Explain how the intellectual frameworks And methodologies of the two Knowledge Domains will be explicitly addressed in the course and practiced by the students.

Class meetings will alternate presentations of, respectively, the literary/cultural and experimental/theoretical contexts for each literary work. Students will engage in discussions, based on provocative questions, about the dynamic interactions between literary works, scientific milestones (e.g. evolution/deep time, relativity and nuclear physics, climate change, biotechnology) and their cultural responses. Writing assignments will pointedly pose questions integrating these ideas.

Demonstrate that each Of the two domains will receive approximately equal attention, providing evidence from course topics, assignments, or other course components, and that students will integrate material from both domains.

Each course topic has equal time allotted for presentation and discussion of experimental/theoretical and literary/cultural approaches. Assignments will be evaluated on the basis of students' abilities to analyze scientific ideas and their cultural/creative response together.

Briefly explain the staffing plan. Given that each Inter-Domain course is approved for two Knowledge Domains, it will be taught by an instructor (or instructional team) with appropriate expertise in both domains.

This course has been designed as two-instructor course, with one instructor from the sciences and one from the humanities sharing teaching and grading responsibilities equally. The course designers have twice taught the course on a schedule which alternates days of instruction, with each instructor being present at each meeting and participating in class discussions. This model has consistently yielded good results, and students have clearly benefited from working with two instructors with different perspectives and disciplinary training. That said, the course could be taught by a single instructor with sufficient knowledge and/or training in both science and the humanities, especially as the course has been designed for flexibility in its content and structure.

Describe the assessments that will be used to determine students' ability to apply integrative thinking.

Students will write several short responses, in which they will consider the representation of scientific concepts and practices in literary texts, and/or in which they will examine rhetorical and stylistic practices in scientific writing. These responses will follow upon class and group discussions facilitated to encourage integrative thinking and analysis, drawing upon concepts and practices from each domain.

Students will write term papers summarizing scientific ideas and their treatment in certain literary works. Students will be required to, for example, critique the scientific ideas from a social/ethical perspective, and critique the cultural response on the basis of the scientific facts.

Students will deliver group presentations at the end of the semester on self-selected topics that integrate methods, issues, and/or practices from the two knowledge domains.

Campuses That Have Offered ( ) Over The Past 4 Years
### Potential Impact

**Pre-Requisites**

is listed as a pre-requisite or concurrent course for the following courses:

Note: Not all courses may be listed here, due to lionpath requirement incompletion.

No pre-requisites or concurrent courses found
ENGL/SC 142N  Science in Literature

Course Description

This course provides an interdisciplinary exploration of the shaping and reflection of public anxieties about science through its portrayals in literature and culture. We will explore two streams in parallel. We will examine selected historic landmarks in science (e.g. evolution, atomic energy/weapons, climate change, biotechnology), with a focus on science writing and the scientific method in experiments, and on common misconceptions about the facts and practice of science. We will examine the development of literary and popular portrayals of science and scientists in their political, economic, social and cultural contexts, paired to these particular scientific developments. By considering scientific writing, novels, graphic novels, and cinema, students will examine both the rhetorical and discursive practices of science writing, and the social and cultural significance of literature in popular understandings of science and its impact.

Course Learning Objectives

Students who successfully complete this course will gain skills in five of the General Education Learning Objectives areas.
1. **Effective communication.** We will conduct integrated discussion of scientific ideas and their cultural and social reflection in literature. You will write short responses at the end of these discussions from time to time, and you will explore these ideas in more detail in writing and in a group presentation.
2. **Key literacies.** Our texts range over novels, novellas, graphic novels/comics, films, scientific journalism, and science textbooks. You will thus develop textual, visual, health, scientific, aesthetic, and historical literacies in this course.
3. **Critical and analytical thinking.** By evaluating competing scientific, ethical, and literary/cultural viewpoints over a range of topics, you will develop critical and analytical thinking.
4. **Integrative thinking.** You will synthesize knowledge encompassing scientific and cultural ideas, across multiple historical periods, and grapple with extrapolating these analyses to the near and far future.

Additionally, this integrative course fulfills the following knowledge domain objectives for General Humanities (GH) and Natural Sciences (GN):
- Demonstrate competence in critical thinking about topics and texts in the humanities through clear and well-reasoned responses (GH)
- Critically evaluate texts in the humanities—whether verbal, visual, or digital—and identify and explain moral or ethical dimensions within the disciplines of the humanities (GH)
- Demonstrate knowledge of major cultural currents, issues, and developments through time, including evidence of exposure to unfamiliar material that challenges their curiosity and stretches their intellectual range (GH)
- Construct evidence-based explanations of natural phenomena (GN)
- Demonstrate informed understandings of scientific claims and their applications (GN)
- Identify societal or philosophical implications of discoveries in the natural sciences, as well as their potential to address contemporary problems (GN)
Materials

The following texts are **required** and available at the bookstore:


We will also post other readings to Canvas.

Grading

<table>
<thead>
<tr>
<th>Class participation</th>
<th>Your contributions to the discussions during class meetings.</th>
<th>200</th>
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<tbody>
<tr>
<td>Incidental writing</td>
<td>Very brief written responses to prompts during class meetings.</td>
<td>200</td>
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<td><strong>100–150</strong> words (points)</td>
<td>(10 × 20)</td>
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<td>Short responses</td>
<td>Short reflective analyses written outside of class.</td>
<td>200</td>
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<td><strong>250–300</strong> words (points)</td>
<td>(4 × 50)</td>
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<tr>
<td>Term paper</td>
<td>A longer reflective analysis of one topic of your choice.</td>
<td>200</td>
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<td><strong>1,500</strong> words, due in class <strong>Thursday March 1</strong></td>
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<td>Group presentation</td>
<td>A fifteen-minute analysis of a text you choose as teams of three.</td>
<td>200</td>
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<td>(Your group assignments will be announced after add/drop ends.)</td>
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<td>TOTAL</td>
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We will record attendance, and attendance will account for a significant proportion of your participation grade. You are allowed three absences free of consequence. Additional unexcused absences will result in your class participation grade being lowered a letter grade for each additional absence. At ten unexcused absences, you will fail the course. Late work will not be accepted in cases of unexcused absences. Moreover we will not announce incidental writing assignments in advance.

We will use the following grading scale to assign final grades:

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<tr>
<th>Grade</th>
<th>Range</th>
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<tbody>
<tr>
<td>A</td>
<td>920 – 1000</td>
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<td>A–</td>
<td>890 – 919</td>
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<td>B+</td>
<td>860 – 889</td>
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<td>B</td>
<td>820 – 859</td>
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<td>B–</td>
<td>780 – 819</td>
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<td>C+</td>
<td>730 – 779</td>
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<td>C</td>
<td>680 – 729</td>
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<td>D</td>
<td>600 – 679</td>
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Civility
Classroom behavior should always reflect the essential Penn State values of civility, integrity, and respect for the dignity and rights of others. As such, the classroom space should be safe, orderly, and positive—free from disruptions, disorderly conduct, and harassment as defined in the University Code of Conduct. The University Code of Conduct defines disruption “as an action or combination of actions by one or more individuals that unreasonably interferes with, hinders, obstructs, or prevents the operation of the University or infringes on the rights of others to freely participate in its programs and services;” disorderly conduct includes but is not limited to “creating unreasonable noise; pushing and shoving; creating a physically hazardous or physically offensive condition;” and harassment may include “directing physical or verbal conduct at an individual …; subjecting a person or group of persons to unwanted physical contact or threat of such; or engaging in a course of conduct, including following the person without proper authority (e.g., stalking), under circumstances which would cause a reasonable person to fear for his or her safety or the safety of others or to suffer emotional distress” (Section IV, B). The course instructor has the authority to request that any disruptive students leave the class for the class period. If disruptive behavior continues in subsequent class periods, a complaint may be filed with the Office of Student Conduct, which may result in the student being dismissed from class until University procedures have been completed.

Disabilities
Many students have disabilities. Some are visible, some are not. We hope you will obtain accommodations if you qualify for them. In order for you to do so, your first step is to contact the Office for Disability Services directly. Penn State welcomes students with disabilities into the University’s educational programs. The Office for Disability Services (ODS) web site provides contact information for every Penn State campus. In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation. If the documentation supports your request for reasonable accommodations, your campus’s disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations.

Academic integrity
Academic dishonesty is not limited to simply cheating on an exam or assignment. The following is quoted directly from the "PSU Faculty Senate Policies for Students" regarding academic integrity and academic dishonesty: Academic integrity, as defined by University Faculty Senate Policy 49-20, is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Academic dishonesty will not be tolerated in this class.