PHYS 30: SCIENCE AND PSEUDOSCIENCE

In Workflow

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Approval Path

1. 2026-10-06T20:43:12Z
   Mikkel Jensen (mikkel.jensen): Approved for PHYS Committee Chair
2. 2026-10-06T20:55:57Z
   Michael Ray (ray): Approved for PHYS Chair
3. 2026-10-08T01:37:49Z
   Mikkel Jensen (mikkel.jensen): Approved for NSM College Committee Chair
4. 2026-10-08T15:32:27Z
   Chris Taylor (ctaylor): Approved for NSM Dean

History

1. Feb 12, 2025 by Janett Torset (torsetj)
2. Sep 11, 2026 by Janett Torset (torsetj)

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Viewing: PHYS 30 : Science and Pseudoscience

Last approved: 2026-09-11T21:53:08Z

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Changes proposed by: Mikkel Jensen (218650862)

Contact(s):

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Catalog Title:
Science and Pseudoscience

Class Schedule Title:
Science+Pseudoscience

Academic Group: (College)
NSM - Natural Sciences & Mathematics

Academic Organization: (Department)
Physics and Astronomy

Will this course be offered through the College of Continuing Education (CCE)?
No

Catalog Year Effective:
Fall 2027 (2027/2028 Catalog)

Subject Area: (prefix)
PHYS - Physics

Catalog Number: (course number)
30

Course ID: (For administrative use only.)
158286

Units:
3

Is the ONLY purpose of this change to update the term typically offered or the enforcement of existing requisites at registration?
No

In what term(s) will this course typically be offered?
Fall, Spring

Does this course require a room for its final exam?
Yes, final exam requires a room

This course complies with the credit hour policy:
Yes

Justification for course proposal:
The course is being updated to incorporate LOs and assessment strategies, which were absent on the form previously. The LOs are also being updated to include the new GE LOs laid out in the new GE policy.

Course Description: (Not to exceed 90 words and language should conform to catalog copy.)
Examination of the methodology of science. Comparison of legitimate investigations with others that do not meet high scientific standards, including both science poorly done and nonsense posing as science. Examples will be drawn primarily from the physical sciences. Analyzes will require study of basic skills of reasoning, types of logical argument, structure and validity of arguments, common reasoning fallacies, critical evaluation of evidence, and understanding of the scientific thinking process.

Are one or more field trips required with this course?
No

Fee Course?
No

Is this course designated as Service Learning?
No

Is this course designated as Curricular Community Engaged Learning?
No

Does this course require safety training?
No

Does this course require personal protective equipment (PPE)?
No

Does this course have prerequisites?
No

Does this course have corequisites?
No

Graded:
Letter

Approval required for enrollment?
No Approval Required

Course Component(s) and Classification(s):
Discussion

Discussion Classification
CS#04 - Lecture /Recitation (K-factor=1 WTU per unit)
Discussion Units
3

Is this a paired course?
No

Is this course crosslisted?
No

Can this course be repeated for credit?
No

Can the course be taken for credit more than once during the same term?
No

Description of the Expected Learning Outcomes and Assessment Strategies:

List the Expected Learning Outcomes and their accompanying Assessment Strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers). Click the plus sign to add a new row.

	Expected Learning Outcome	Assessment Strategies
1	Distinguish scientific claims from pseudoscientific and non-scientific claims using appropriate criteria and evidence.	Homework, quizzes, exams.
2	Evaluate the credibility of scientific claims, experts, sources, research studies, and media reports of scientific findings.	Homework, quizzes, exams.
3	Analyze evidence, evaluate alternatives and their likely consequences, and construct arguments supporting reasoned recommendations.	Writing assignments.
4	Identify and apply the elements of sound logical reasoning to compose and critique deductive and inductive arguments.	Writing assignments, homework, quizzes, exams.
5	Identify and critique fallacies, biases, and errors of reasoning.	Homework, quizzes, exams.
6	Identify and evaluate the use of facts and opinions as evidence in the construction of arguments.	Homework, quizzes, exams.
7	Identify and evaluate methods and reasoning appropriate to the discipline associated with the course.	Homework, quizzes, exams.

Attach a list of the required/recommended course readings and activities:
Syllabus for PHYS30 Science+Pseudoscience - revised.pdf

Is this course required in a degree program (major, minor, graduate degree, certificate?)
No

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?
No

Will there be any departments affected by this proposed course?
No

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.
I/we agree

University Learning Goals

Undergraduate Learning Goals:
Intellectual and practical skills
Personal and social responsibility

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?
No

Is this a General Education (GE) or Graduation Requirement (GR) course or is it being considered for GE/GR?

Is this a General Education (GE) course or is it being considered for GE?
Yes

In which GE area(s) does this apply?
1B. Critical Thinking and Composition
A3. Critical Thinking (admin only)

Which GE objective(s) does this course satisfy?
Construct a non-fallacious verbal argument, recognize fallacious arguments, and follow the verbal arguments of others.

Attach Course Syllabus with Detailed Outline of Weekly Topics:
30_F26_Morris.pdf

Syllabi must include: GE area outcomes listed verbatim; catalog description of the course; prerequisites, if any; student learning objectives; assignments; texts; reading lists; materials; grading system; exams and other methods of evaluation.

Will more than one section of this course be offered?
Yes

Provide a description of what would be considered common to all sections and what might typically vary between sections:
All sections will address all LOs as listed above. Instructors are free to decide how to address the LOs per their academic freedom, including exact choice of assessments, textbook, etc.

Please write a statement indicating the means and methods for evaluating the extent to which the objectives of the GE Area(s) and any writing requirements are met for all course sections:
It is the responsibility of the Department Chair to ensure that all instructors are provided with the LOs for courses. Instructor compliance is routinely reviewed by the Department Retention, Tenure, and Promotion (RTP) Committee.

What steps does the department plan to take to ensure that instructors comply with the respective category criteria and who is responsible?
It is the responsibility of the Department Chair to ensure that all instructors are provided with the LOs for courses. Instructor compliance is routinely reviewed by the Department Retention, Tenure, and Promotion (RTP) Committee.

General Education - Area 1B: Critical Thinking and Composition

Section 1.

Indicate in written statements how the course meets the following criteria for Area 1B. Relate the statements to the course syllabus and outline. Be as succinct as possible.

Students study about and consciously develop skills in critical thinking.
Students are taught the foundations of the scientific method, the logic of the reasoning (inductive and deductive reasoning), and apply this to different cases to critically distinguish between scientifically supported conclusions and pseudoscientific conclusions.

Knowledge through logical analysis and argument construction is pursued throughout the course.
Students analyze scientific and pseudoscientific cases from real life and argue in assignments (both homework, quizzes, and exams, as well as writing assignments) what must constitute a scientifically supported claim.

Instruction develops understanding of logical relationships between premises and conclusions.
The course covers the structure of arguments, including premises and conclusions, e.g., Module 4.

Instruction develops ability to recognize more common formal and informal fallacies.

The course covers a section on logical fallacies, and students are asked in quizzes, homework, and exams to identify and recognize fallacies in arguments, e.g., Module 9.

Grading reflects emphasis on logical processes.

All assessment focuses on assessing students' ability to construct logical arguments and reason logically. For example, in their writing assignments, students are asked to construct arguments based on logical reasoning, and the assessment therefore grades their ability to apply logic.

Develops basic skills, applicable to a variety of academic subjects and to the fulfillment of such roles as citizen, consumer, leader and moral agent.

1) Skill in evaluating the validity, strength and relevance of arguments.

2) A sense of logical structure of both inductive and deductive forms.

3) Awareness of uses and abuses of argument language, including connotation, ambiguity and definition.

4) Skill in handling a variety of arguments in variety of contexts.

5) Ability to argue fairly and to handle bias, emotion, and propaganda.

As outlined above, the course focuses on constructing and evaluating arguments, and on logic and reasoning (especially as it pertains to the scientific method). The focus on pseudoscience also especially makes the students aware of how fallacious arguments can be used abusively to manipulate or mislead, and how seemingly logical arguments can be misleading. The course emphasizes distinguishing science and pseudoscience in an unbiased, unemotional way, focusing on logical argument and reasoning.

Includes a writing component described on course syllabus.

l) If course is lower division, formal and/or informal writing assignments encouraging students to think through course concepts using at least one of the following: periodic lab reports, exams which include essay questions, periodic formal writing assignments, periodic journals, reading logs, other. Writing in lower division courses need not be graded, but must, at a minimum, bemevaluated for clarity and proper handling of terms, phrases, and concepts related to the course.

2) If course is upper division, a minimum of 1500 words of formal, graded writing. [Preferably there should be more than one formal writing assignment and each writing assignment (e.g. periodic lab reports, exams which include essay questions, a research/term paper etc.) should be due in stages throughout the semester to allow the writer to revise after receiving feedback from the instructor. Include an indication of how writing is to be evaluated and entered into course grade determination.]

The course requires students to engage with cases of both scientific and pseudoscientific arguments, and conduct written assignments throughout the course practicing the construction of arguments based on the topics studied in the course.

Section 2.

If you would like, you may provide further information that might help the G.E. Course Review Committee understand how this course meets these criteria and/or the G.E. Program Objectives found on PP. 2-3 of the "Statement of Policies Pertaining to the G.E. Program" of August, 1991.

n/a

Key: 3934