Department(s)/Program(s):

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Faculty Contact Person(s):

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Department Chair/Program Director:

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Supported by Department/Program Faculty? Yes or No [**bold one**]

Course Number & Title:

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**RATIONALE | Natural Science (Physics-Based)**

Science provides an empirical analysis of truth in the natural order and approaches the natural world from the unique perspective of the scientific method. Students should be able to dissect an argument and determine if it truly meets the criteria of science, or if it simply uses scientific-sounding words and phrases to hide a flawed analysis. They should be able to appreciate the compatibility of reason and faith in the pursuit of truth.

In the Dominican tradition, study is undertaken not only for itself but also for the benefit of others. In engaging with the pressing issues of the day (such as embryonic stem cells, global warming, and the wise use of energy resources), and committed to service and the common good, graduates must be prepared to look beyond labels and catch phrases to the basic scientific facts and data which will provide a foundation for realistic solutions. Students need to be able to integrate religious, philosophical, political, and scientific viewpoints into a coherent whole in order to make effective decisions for the betterment of society. This background will enable Providence College students and graduates to make informed decisions about important scientific issues that affect society.

**OBJECTIVES | Natural Science**

Please explain how the proposed course fulfills the following objectives for the Natural Science (physics-based) Requirement. **Point to where in the syllabus each objective is met and explain how students will be held accountable through assignments and assessments.** If there are multiple sections that meet the objectives in different ways, specify how, using examples from each syllabus.

Characterize the scientific method by demonstrating the dependence of science on quantitative and testable empiricism, the way scientific theories and models are developed, and the dynamic nature of scientific theories. [For example, would student see repeated examples of observation, hypothesis formation, testing, in the development of theories and models throughout the semester? Explain. How will you demonstrate the dynamic nature of scientific theory in the class? How would you demonstrate the way scientific theories and models are developed? How do you demonstrate the dependence of science on quantitative and testable empiricism?]

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**OBJECTIVES | Natural Science | Cont’d**

Present a body of contemporary scientific information drawn from the natural sciences and, where appropriate, address issues that have a significant impact on the world to give students a foundation from which to understand better the interrelatedness of the sciences and society. [For example, explain how you will present contemporary scientific knowledge/information and relate it to the subject matter of the class. How does this course go beyond a simple historical narrative of the subject matter to include contemporary scientific knowledge and where appropriate the connection of this knowledge to society?]

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Hands-on Activities: Give students significant opportunities to illustrate the role of testable empiricism in the development of scientific theories via classroom, laboratory, or project activities. [For example, when participating in exercises that illustrate the methods of science, will students be assessed and will exercises be a significant portion of the final grade? (The committee is recommending that 15% of class time should be the minimum spent on such activities and that the final grade should illustrate a similar weight.) Will hands‐on activities be conducted in class or out of class (this includes in a separate lab facility or outside of class time)? If you will conduct hands-on activities out of class, please explain why this is preferable. Will you demonstrate the relationship between the hands‐on activities and the rest of the class material? Will the students be applying what is learned in class to their hands-on activities? Please give a specific example.]

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**COURSE SYLLABUS | Natural Science (Physics-Based)**

\*Email pcsas@providence.edu with this completed form **and** your syllabus/syllabi attached.

**Please Note:** It is expected that in accordance with the [approved syllabus guidelines](http://www.providence.edu/academic-affairs/Faculty-Resources/Documents/syllabus-guidelines.pdf), the final syllabus will include the following:

* An indication of which Core requirement(s) the course satisfies
* A listing of the Core objectives for the requirements