PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF AN UNDERGRADUATE COURSE
(10000-49000 LEVEL)

A&SCCD/#09-22

DEPARTMENT: Philosophy
EFFECTIVE SESSION: Spring 2011

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

- New course with supporting documents
- Add existing course offered at another campus
- Expiration of a course
- Change in course number
- Change in course title
- Change in course credit/type
- Change in course attributes (department head signature only)
- Change in instructional hours
- Change in course description
- Change in course requisites/restrictions
- Change in semesters offered (department head signature only)
- Transfer from one department to another

PROPOSED:

Subject Abbreviation: PHIL
Course Number: 35200
Long Title: Topics in the History and Philosophy of Science
Short Title: Topics Hist Phil Science

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

CREDITS TYPE

- Fixed Credit: 3 Cr. Hrs.
- Variable Credit Range: Minimum 3 Cr. Hrs. (Check One) 3
- Equivalent Credit: Yes

COURSE ATTRIBUTES: Check All That Apply

- Pass/Not Pass Only
- Satisfactory/Unsatisfactory Only
- Repeatable
- Maximum Repeatable Credit: 12
- Credit by Examination
- Special Fees
- Registration Approval Type
  - Department
  - Instructor

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):
A study of philosophical issues raised by the history and practices of science with a focus on the history and practices of a specific scientific discipline, e.g., anthropology, biology, chemistry, geology, physics, psychology, sociology.

*COURSE LEARNING OUTCOMES:

Students will gain an awareness and understanding of ontological, epistemological and axiological issues raised both by the history and practices of science in general and by the history and practices of the specific science under consideration.

OFFICE OF THE REGISTRAR
To: COAS Curriculum Committee

From: Ken Long

Re: New Course Proposal: PHIL-35200 “Topics in the History and Philosophy of Science”

Date: April 22, 2010

PHIL 35200: “Topics in the History and Philosophy of Science”

(A “Variable Title” Introduction to the Philosophy of Science)

A. Background

The current PHIL 351 is designed with philosophy majors in mind and presupposes no science background. However, recent conversations with representatives of IPFW science departments and with Kathleen Murphy, Associate Dean of the IPFW School of Education, indicate the desirability of a course directed towards the interests and needs of both science majors and science education majors. A variable title cycle of science specific versions of an introductory philosophy of science course has many potential benefits. It will attract more science majors to the course. It will encourage a cross-pollination of ideas between philosophy students and science students. By taking the course twice, it will allow students to study the same philosophical issues from the perspective of two different sciences. It will address many of the current rubrics concerning the nature of science (NOS) utilized by IPFW science departments and by the IPFW School of Education. It will satisfy General Education Area IV requirements. Philosophy majors will obtain basic knowledge of a scientific area while students in that area will gain a philosophical perspective on their discipline. Team teaching with a member of the appropriate science department is foreseen as a future means of enhancing student interest and enrichment of student experience.

B. Course Description

B.1 Goals. The overall goal of the course is to approach basic issues in the philosophy of science from the perspective of a single scientific discipline, such as physics, biology or anthropology. Issues will be highlighted and analyzed using problems and examples from the history and practices of the particular science. The topics selected offer a general philosophical background to the study of science while
addressing philosophical issues more specific to the interests and needs of science and science education students.

B.2 Contents. Issues concerning observation and measurement, theory and model construction, theory evidence and confirmation, scientific change and progress, reality of theoretical entities and reference of theoretical terms, and the relationship between science and values, society and religion will all be addressed within the context of the history and practices of the science in question, with an understanding of how such an approach can both enlighten and occasionally skew or obscure the issue. Although each version of the course will have a specific scientific focus there will be ample opportunity throughout to mention connections to other sciences as well.

B.3 Pedagogy. The course is lecture-based but encourages students to participate in class-room discussions about fundamental concepts and issues. An overtly philosophical text is used in combination with a text emphasizing the history and methodologies of the specific science. A fifth of the grade is based on a 10-15 page term paper involving a significant level of research, explication and attempted resolution of a philosophical issue viewed from the perspective of the particular science. Some sessions will be devoted exclusively to the history and/or practices of the science while others will be devoted exclusively to making philosophical hay from such subject matter. In a team-taught version the science faculty member would do the former and the philosophy faculty member the latter.

B.4 Mission. Students in general, and humanities students in particular, should be educated in a comprehensive way so that they have been exposed to and have gained an appreciation of the benefits of rigorous cross-disciplinary thinking. They should have the opportunity to learn about the advantages (and potential disadvantages) of embedding traditional philosophical issues in the context of specific modern sciences.

C. Sample Course Description and Sample Class Schedule

See attached.
PHIL 352: Topics in the History and Philosophy of Science: Biology Version, fall 2009 (WF, 12:00 - 1:15, CM 40)

INSTRUCTOR: The best and preferred method of contacting me is by email.
Name: Kenneth A. Long
Office: CM 07
Office Hours: WF 11-11:50 a.m. or by appointment.
Office & Voice Mail: 481-6853
Department Phone: 481-6366
Fax: 481-6367
E-mail: long@ipfw.edu
Home Page: http://www.ipfw.edu/phil/faculty/Long/long.htm

COURSE DESCRIPTION: In this course we examine the following philosophical issues all through the lens of the history and practices of biology:
• The nature of science and scientific methodology
• The proper understanding of scientific explanations
• Whether or not science aims at a description of reality
• What counts as scientific progress
• What a scientific theory is and how they are confirmed or disconfirmed
• Causality and laws of nature
• Science and objectivity
• Science and values
In addition we will consider issues specific to biology such as
• Vitalism in biology
• The role of teleological and functional explanations in biology
• Jerry Fodor’s recent attack on the explanatory value of Darwinian fitness in evolutionary theory
• Evolution and religion/ethics/God/creation/intelligent design/politics
We will divide all issues into three broad categories: (1) issues about the basic components of science, (2) issues about scientific change and progress, and (3) issues about science and values. I may use occasional handouts to supplement the text. These plus the syllabus and any other class documents will be placed on the class’s elearning page.

COURSE OBJECTIVES: Upon completion of this course you should be able to
• Articulate alternative positions on the differences and boundaries between science and nonscience, with special application to biology.
• Articulate alternative positions on the topic of scientific change and scientific progress, especially within the history of biology.
• Articulate alternative positions in the debate between scientific realists and nonrealists, especially over the issue of whether theories in biology are meant to be genuinely descriptive of reality.
• Articulate and defend several alternative positions on science and values and science and society, with an emphasis on value issues raised by biology.
More generally
• You should have improved critical reading and thinking skills in the areas of both science and philosophy.
• You should be able to integrate philosophical perspectives on the nature of scientific method into your own deliberations about the nature of science and the role it does and should play in contemporary societies.
• You should be able to think and write clearly on science and philosophy, science and method, science and ethics, science and public policy (polities), and science and the social order.
• You should be able to intelligently discuss the role of science and scientific reasoning in a society that seeks to be both just and wise.
• You should have acquired the ability to examine contemporary and perennial problems of science and philosophy in the light of different models of science.

TEXTS: I’ll probably have some other handouts for you as well!

Required (available in Follet’s Bookstore):

Optional (available online at amazon.com):

GRADING: Course grades are based on four exams and a 7-10 page term paper. Each is worth 20% of your grade. The paper will be on a topic approved by me and it will be due on Friday of week 14. Grade improvement, attendance and class participation are considered in determining borderline cases.

LATE ASSIGNMENT POLICY: Late assignments will not be accepted and missed exams will not be regiven without the prior approval of the instructor. Missed assignments or exams must be made up at the nearest possible date, subject to the agreement of the instructor.

ATTENDANCE: You are expected to be present. Three straight misses without approval will result in a full grade reduction as will any total of eight or more unexcused misses. Attendance is taken daily, usually orally but sometimes by passing around an attendance sheet. If you come in after attendance has been taken it is your responsibility to see that you are counted present. Late attendance will be counted only at the instructor’s discretion.

DISABILITIES STATEMENT: If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Services for Students with Disabilities (Walb, room 113, telephone number 481-6658), as soon as possible to work out the details. Once the Director has provided you with a letter
at testing your needs for modification, bring the letter to me. For more information, please visit the web site for SSD at http://www.ipfw.edu/ssd/

ACADEMIC DISHONESTY STATEMENT: You are expected to abide by university and departmental ethical guidelines for academic conduct. Please read the attachment online regarding the philosophy department's policy on cheating and other forms of academic misconduct.

GENERAL EDUCATION STATEMENT: This class satisfies General Education Area III requirements. Students who have completed the General Education requirements at IPFW are expected:

1. To be familiar with the important modes of human thought that are the foundations of science, philosophy, art and social behavior.
2. To possess effective foundation skills:
   a. Read, write, and speak with comprehension, clarity, and precision.
   b. Identify substantive knowledge and disciplinary methods.
   c. Develop information literacy skills.
   d. Reason quantitatively (as means of gaining and creating knowledge and drawing reliable conclusions)
3. To demonstrate the ability to think critically and to solve problems using the foundation skills:
   a. Evaluate their ideas and the ideas of others based upon disciplined reasoning.
   b. Understand the traditions that have formed one’s own and other cultures.
   c. Be able to articulate their ideas in appropriate media.

SCHEDULE OF TOPICS READINGS AND EXAMS: Subject to change. W = Wednesday, F = Friday. The usual pattern is that on Wednesdays we consider the topic from the perspective of science in general and on Friday from the perspective of biology in particular.

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<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Reading/Topic/Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>8/26 &amp; 8/28</td>
<td>Philosophy and Science? (A, Ch. 1; B, Introduction)</td>
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<td>2</td>
<td>9/2 &amp; 9/4</td>
<td>Observation and Measurement (A, Ch. 2; B, Chs. 5 &amp; 6)</td>
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<td>3</td>
<td>9/9 &amp; 9/11</td>
<td>Experimentation and Realism (A, Ch 3; B, Chs. 5 &amp; 6)</td>
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<td>4</td>
<td>9/16 &amp; 9/18</td>
<td>W: Catch-up and Review; F: Exam 1</td>
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<td>5</td>
<td>9/23 &amp; 9/25</td>
<td>Theories and Models (A, Ch. 4; B, Chs. 7 &amp; 12)</td>
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<td>6</td>
<td>9/30 &amp; 10/2</td>
<td>Scientific Explanation (A, Ch. 5; B, Ch. 9)</td>
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<td>7</td>
<td>10/7 &amp; 10/9</td>
<td>Evidence and Confirmation (A, Ch. 6; B, Chs. 6 &amp; 8)</td>
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<td>8</td>
<td>10/14 &amp; 10/16</td>
<td>W: Catch-up and Review; F: Exam 2</td>
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<td>9</td>
<td>10/21 &amp; 10/23</td>
<td>Inductivism and Falsificationism (A, Ch. 8; B, Ch. 5)</td>
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<td>10</td>
<td>10/28 &amp; 10/30</td>
<td>Paradigms and Research Programs (A, Ch. 9; B, Chs. 7 &amp; 8)</td>
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<tr>
<td>11</td>
<td>11/4 &amp; 11/6</td>
<td>Paradigms and Research Programs (A, Ch. 9; B, Chs. 7 &amp; 8)</td>
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<td>12</td>
<td>11/11 &amp; 11/13</td>
<td>W: Catch-up and Review; F: Exam 3</td>
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<td>13</td>
<td>11/18 &amp; 11/20</td>
<td>Science and Religion (A, Ch. 13; B Chs. 1, 2, 4, 7)</td>
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<td>14</td>
<td>12/2 &amp; 12/4</td>
<td>Fodor on fitness (in-class handouts)</td>
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Paper Due 12/4!
15. 12/9 & 12/11 Science and Society (A, Ch 14)
16. 12/14 Final Exam: Monday, Dec. 14, 10:30 a.m.-12:30 p.m.