PHYSICS MAJOR PANEL (updated 2023 Fall)

Course Approval Criteria

Course application materials must include a recent representative syllabus and any additional explanatory documents necessary to clearly document all the following information.

- IAI course code requested
- Course prefix, number and title, number of credit hours, and catalog description
- Prerequisites and co-requisites: Course prefixes, numbers and course titles
- If a stand-alone lab course syllabus is being submitted for IAI lab/lecture course credit, then the syllabus and relevant information of the co-requisite lecture must be duplicated in the lab submission.
- A Detailed Lecture Course Outline and Daily or weekly schedule of material to be covered with one or two sentence description or detailed list of sub-topics **(Chapter titles alone should not be submitted)**. The panel should be able to determine the scope and breadth of coverage of topics. It should be clear that the amount of time spent on a topic is appropriate for the course content.
- Objectives or outcomes or goals
- Delivery Modes for all offered lecture and lab sections (online, hybrid, face-to-face) paying particular attention to document existence of lab sections with different delivery modes
- List Textbook(s), learning resources, lab manuals and distinguish if different books or manuals are used for different delivery modes. Texts reflect and support appropriate course outcomes and requirements. As institutions pursue the opportunity to expand into online/open resource electronic text material, the panel has sought to provide some necessary guidance on citing these learning resources in submitted syllabi and documents. If any online reading or resource materials are used, provide accessible evidence which may be a complete working url or bibliographic citation. This site/resource must be active, working, and viewable by the panel. Active hyperlinks are acceptable but cannot be embedded in an online learning system. When online or other forms of resources are used, if the panel does not see enough detail in the syllabus to determine the appropriateness of these materials, the panel will request more information from the institution.
- 3 representative labs from the lab manuals for custom lab manuals. At least 2 of the 3 sample labs should be hands-on.
- Approximate number of sections offered yearly per each delivery mode
- PER each LAB module - paying particular attention to documenting differences or similarities in actual activities used in hybrid or on-line sections to face-to-face sections.
  - Short descriptions of all lab activities/modules (not just titles) should be included for all delivery modes (e.g., face-to-face, hybrid, online)
  - Document contact hours per lab (distinguishing it from attached recitation time, for example)
  - Document each lab module's format (e.g., hands-on, virtual, software simulations of hands-on labs, field trips, programming)
  - Document if differences exist in lab modules and lab module format for different delivery modes.
- Laboratory Contact Hours
  - The panel requires a minimum of 30 scheduled contact hours of lab. A minimum of 10 lab activities on different topics, of which no more 2 can be simulations. All 10 labs should involve the collection and analysis of data.
    - The descriptions of labs should include clear evidence of actual lab time doing experiments. It should indicate what the experiments are, and the time spent to do that activity. Other activities that are not spent on experimentation should be mentioned with time spent on these activities.

Reminder: Total number of lab contact hours (1 credit = 30-45 contact hours).

General Coding Practice

- A course can only be assigned to one code/description within this panel. However, multiple courses from the same institution may be assigned the same code/description.
- A student may "count" only one course per code in fulfilling major requirements.

Lab course submission documentation details

Lab sheet (tabular format) must be included that documents each lab module/activity paying particular attention to activity format (e.g., hands-on, virtual, other activity) and documents if sections with different delivery modes (e.g., face-to-face, on-line, hybrid) use different formats or activities.

- **Lab manual:** Lab sheet table must list the title, author, and publication date of the lab manual used. If different lab materials are used for different delivery modes, then the information relevant to each lab manual should be included and documented.
- **Custom Lab Manuals:** If the lab manual was created by the institution or is custom-published, then the panel requires three representative sample labs modules be submitted.
- **Descriptions of labs:** Descriptions of all lab activities (not just titles) should be included for all delivery modes (e.g., face-to-face and online and hybrid). Description of the labs should include the time spent on each lab as distinct from non-lab related activities such as recitation. The type of activity (e.g. hands-on, virtual, computer simulation, field trip, etc.) should be made clear from the lab activity description and also denoted in a separate column.
  - It should be clear within descriptions that experimentation and data analysis are thoroughly explored within the lab content. Data collection using interaction with physical equipment is necessary for successful completion of the course for IAI approval. While experimental computational labs can be included in this data collection requirement, computer simulations are not likely to fulfill the requirements of hand-on lab experience.

Common Reasons Courses Are Not Approved

- Course does not match description for IAI designation
- Topical outline does not have enough detail.
- Information relevant to assess Lecture was not included within a lecture/lab course submission
- Lab activities are not described in sufficient detail.
- If a custom laboratory manual is used, 3 examples must be submitted
- Laboratory contact hours do not meet the IAI panel's requirements.
- Lab sheet/content is inadequate

All materials submitted for panel review must be recent and representative.

Syllabus Checklist follows on separate page.

PHYSICS MAJOR PANEL
Course Syllabus Checklist

□ **Course Description**
- □ A complete description for this course is required; a catalog description may be substituted if it is sufficiently informative. The course description should compare favorably to the description given on the iTransfer website. It should include prerequisites and corequisites information.

□ **Institutional or instructor evidence of reflection on teaching excellence**
- □ Listing of Objectives or outcomes or goals

□ **Topical Outline (Daily/Weekly Schedule)**
- □ The Physics Major Advisory Committee will review the schedule for evidence of the content of the course for a full semester or equivalent. Provide detailed outlines of all topics, assignments and activities.
- □ Do not list simply, 'Chapter 1, Chapter 2" etc. Listing the chapter titles from the published text is not sufficient either. More detail is required.
- □ A lab weekly lab schedule including a concise description of each laboratory experience is required including equipment/instrumentation used. In addition, the panel requests an indication if any non "hands-on" lab experiences or instructional methodologies are used (e.g. web, videotape)

□ **Laboratory Contact Hours**
- □ The panel requires a minimum of 30 scheduled contact hours of lab. A minimum of 10 lab activities on different topics, of which no more 2 can be simulations. All 10 labs should involve the collection and analysis of data. Certain activities within a lab may not be able to be counted in lab contact hours, such as some lab exams.
    - • The descriptions of labs should include clear evidence of actual lab time doing experiments. It should indicate what the experiments are, and the time spent to do that activity. Other activities that are not spent on experimentation should be mentioned with time spent on these activities.
        - • Certain activities within a lab may not be able to be counted in lab contact hours, such as some lab exams, etc.

□ **Textbooks**
- □ The choice of text is required and may provide evidence of course content and focus. The author and date of publication of text is required.
- □ If there are supplemental texts that will be used, these should also be listed.
- □ Texts reflect and support writing or speaking outcomes and requirements.
- □ As institutions pursue the opportunity to expand into online/open resource electronic text material, the panel has sought to provide some necessary guidance on citing these learning resources in submitted syllabi and

documents. If any online reading or resource materials are used, provide accessible evidence which may be a complete working url or bibliographic citation. This site/resource must be active, working, and viewable by the panel. Active hyperlinks are acceptable but cannot be embedded in an online learning system. When online or other forms of resources are used, if the panel does not see enough detail in the syllabus to determine the appropriateness of these materials, the panel will request more information from the institution.

☐ **Date of Preparation of the Syllabus**
  ☐ The submitted syllabus is required to have date of preparation and the semester for which it was written.