Location: MP-408  Time:  Wednesday 1:30pm - 2:45pm
Prerequisites: PHYS 311 and Senior status
Lecture materials: Blackboard site
Instructor: Dr. Alex Punnoose, apunnoos@boisestate.edu  (208) 426-2268  MP-427
Office Hours: Wednesdays 3:00pm - 4:30pm or by appointment

Course Description: This Seminar Program is a culminating experience for physics majors, providing practice in the search and critical assessment of research articles and current trends in physics. It is designed to provide students with the opportunity to explore in detail an intellectual PHYSICS topic in a small-seminar setting. The students should search for references themselves for their reports and seminar talks. Communication of results for a variety of audiences is emphasized.

Learning outcomes:

After completion of this course, the student should be able to:

- Learn to conduct detailed literature review on a physics topic.
- Write a personally composed report on a topic in modern physics,
- Learn to use advanced bibliography programs such as EndNote.
- Learn how to do a powerpoint presentation.
- Present the report at a seminar.
- Discuss how this topic is related to the physics courses that were studied.
- Learn how to give a talk on a physics topic.
- Learn the peer review process.
- Critically evaluate another person's report and seminar, and learn to ask questions.
- Have a general knowledge of different topics in modern physics.

Requirements for final grade:

Practice reports: Print-outs must be submitted before midnight of every assigned due date. Leave them in my mailbox with your name and other details included as header. Abstract and practice reports will contribute up to 10% of the total course grade.

Project report: A 6 page written final report on a Physics topic should be prepared with 1.5 spacing, and Times New Roman font; Clear print outs (preferably in color) must be submitted before the deadline. Include an additional cover page with the title and the abstract. Figures (4 to 10) and their figure captions should be embedded in the report, but they will not be counted towards the 6 page report limit. Use additional pages for detailed reference list (15-30 references; use AIP style) and they should be imported using EndNote Web or similar highly professional bibliography programs. References should be cited using EndNote or a similar professional bibliography program - use http://guides.boisestate.edu/endnote and http://guides.boisestate.edu/citationsmanagers to learn more about these. Final Project report is worth 30% of the total course grade.

Attendance: Attendance and active participation in all the proposed activities are worth 5% of the course grade.

Practice Talks: Practice talks and powerpoint presentation materials will count towards 10% of the course grade.
**Final Oral presentation:** Final oral presentation of the report in the form of a seminar must be done using a high quality powerpoint or other suitable programs. This final talk is a publically advertised talk made to a general audience, including non-physics majors, so the talk should be prepared keeping this in mind. Approximate average speed of powerpoint presentations is one slide per minute, but it might vary with content and presenter. Everyone is encouraged to prepare a Powerpoint file with adequate slides and give a final talk for 20 minutes with additional 5 minutes for questions by the audience. Make high quality slides - use necessary effects and techniques to help your presentation. Practice presentations of shorter length during the course should also be taken very seriously. Final Oral Presentation (including the presentation materials/slides) is worth 35% of the total course grade.

**Active participation in the Question and Answer sessions:** Active participation in the final oral presentations of other students will contribute to 10% of the total grade.

**National Physics Test Participation:** All eligible students should take the national physics exam "ETS Physics Test" conducted by the Educational Testing Service (ETS), see the following web site for details - [http://www.ets.org/mft/about/content/physics](http://www.ets.org/mft/about/content/physics). It is free and given at the BSU testing center. Your score on this test will not affect your grade of this course, but test participation is a requirement for giving the final Seminar talk.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Part I:</strong> Topic selection</td>
</tr>
<tr>
<td>1.</td>
<td>1/14</td>
<td>Syllabus; Discussion: Factors that make good scientific reports and presentations; Guidelines for seminar topic selection; Library databases; collection of reference materials; Laptop access during class.</td>
</tr>
<tr>
<td>2.</td>
<td>1/21</td>
<td>Use library resources/databases to choose titles of three modern physics topics of your special interest and write 2-3 lines about each of them; List them in one sheet in the order of priority; <strong>Discuss and submit them in class.</strong></td>
</tr>
<tr>
<td>3.</td>
<td>1/28</td>
<td>Guest presentation on scientific databases and EndNote Web by Catalog Librarian Professor Cheri Folkner (Please bring your laptops; It is a hands-on training). Seminar topic assignment.</td>
</tr>
<tr>
<td>4.</td>
<td>2/04</td>
<td>More discussion about the topic; Discuss how to choose reference papers and how to write a good abstract on the assigned physics topic. Use library site to learn more about the topic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Part 2:</strong> Practice presentations, and abstract and draft report writing</td>
</tr>
<tr>
<td>5.</td>
<td>2/11</td>
<td>Use library resources to collect 5 good reference papers about your assigned topic and read them carefully; Discuss with instructor if you need help with selected papers. Write an abstract (~250 words) on your assigned topic using those papers; Students should submit the abstract and a list of the 5 best reference papers (use EndNote; AIP style) that they used for writing it.</td>
</tr>
<tr>
<td>6.</td>
<td>2/18</td>
<td>General discussion on how to improve abstracts and about draft report</td>
</tr>
</tbody>
</table>
framework and its deadline; 5 min introductory talks by students - why did I choose this topic? why is it important? how is it related to what I learnt from the classes I took? Main problems/questions in the field etc.

7. 2/25 One-on-one meetings in my office to ask any questions concerning topic; Use library sources to collect additional reading/reference materials on your seminar topic; Prepare a 10 minute powerpoint presentation; Work on draft report.

8. 3/04 10 minute powerpoint presentations on seminar topic along with 2 min Q & A.

9. 3/11 10 minute powerpoint presentations on seminar topic along with 2 min Q & A.

10. 3/18 One-on-one meetings to ask questions concerning talk/report; Prepare a 20 minute powerpoint presentation using the report material; Work on improving draft report.

*********************************************************************************************
SPRING BREAK 3/23 - 3/29 (Prepare a 20 minute final practice powerpoint presentation)
*********************************************************************************************

11. 4/01 20 minute powerpoint presentations on seminar topic along with 5 min Q & A (first group); Discussion; Submit full draft 3 days before presentation.

12. 4/08 20 minute powerpoint presentations on seminar topic along with 5 min Q & A (second group); Discussion; Submit full draft 3 days before presentation.

13. 4/15 20 minute powerpoint presentations on seminar topic along with 5 min Q & A (third group); Discussion; Submit full draft 3 days before presentation.

Part 3: Final Oral Presentations and Report submission

14. 4/22 Final public presentations by students 1-4(submit a print-out of the final report, the power point slides, and evidence of your ETS Physics test participation)

15. 4/29 Final public presentations by students 4-8 (submit a print-out of the final report, the power point slides, and evidence of your ETS Physics test participation)

16. 5/04 Final public presentations by students 9-12 (submit a print-out of the final report, the power point slides, and evidence of your ETS Physics test participation)
**ACADEMIC HONESTY:** Although you are encouraged to discuss the class lectures, readings, and assignments with your classmates and other people, all the work that you turn in must be your own. NO CHEATING OR PLAGIARISM (PRESENTING OTHER PEOPLE'S WORK AS IF IT WERE YOUR OWN) WILL BE TOLERATED, INCLUDING ANY USE OF MATERIALS FOUND ON THE WEB OR ELSEWHERE. If you make use of online sources, journal/magazine articles or textbooks, you must provide explicit written references to the sources you used. Failure to follow this rule or any others listed in the Academic Handbook could have drastic consequences, including (but not limited to) ejection from the course with a failing grade.

**GRADING:**    A = 90 - 100,    B = 78 - 90,    C = 65 - 78,    D = 45 - 60