GENERAL COURSE INFORMATION
Instructor: Dr. Harry D. Downing, Professor and Chair of the Department of PHY, EGR and AST
Office: Room 322B Miller Science Building
Office Hours: 11-11:40 M-F; 2:30-3:30 T-R, or by appointment
Phone/Fax/E-mail: 468-2290 or 468-3001/Fax: 468-4448/hdowning@sfasu.edu
Class Meeting Times and Place: 4:00-5:00 TR, Room 334 Miller Science Building
Physics Homepage: www.physics.sfasu.edu
Web Calendar: https://goo.gl/iz6mA4

COURSE DESCRIPTION
Undergraduate Research and Technical Presentations - 2 semester hours. An individual instruction course involving undergraduate research and technical presentations. The purpose of this course is to give the student experience in research and preparation of oral presentations on scientific research. Prerequisite: Junior or Senior major status or permission of department chair.

Textbooks:
No textbook is required.

COURSE OBJECTIVES
The purpose of this course is to give the student experience in research and preparation of oral presentations on scientific research. Prerequisite: Junior or Senior major status or permission of department chair.

COURSE REQUIREMENTS/GRADING POLICY
Each student will give two seminars that are between 20 and 30 minutes in length. The seminars should include the following: an introduction to the topic, PowerPoint slides (or a suitable electronic alternative), a description of the physics and or engineering involved, related mathematical equations, a hands-on demonstration or chalkboard derivation, and a summary or conclusion. Students will develop and present two practice seminars as well as provide and receive feedback for all practice seminars. Students will watch a video of their own seminar and evaluate it. Students will attend other invited seminars as directed. Students will prepare a professional resume. Students will utilize Career Services to go through a mock interview. Students will turn in a list of ten job postings (4 attendance counts) appropriate to their career and for which they are qualified. Students will turn in a list of 100 companies (4 attendance counts) which hire physicists/engineers. Students will take the physics subject Major Field Test or an engineering exam. Students will fill out an ethics questionnaire (3 attendance counts). The non-graded assignments listed above will be accounted for within the attendance portion of the class grade.

Student grades are determined by the average of the following six grades (each worth 0-100 points): seminar 1 grade, seminar 2 grade, attendance grade, resume grade, mock interview grade and the major field test. The grading scale is as follows: A = 90 to 100, B = 80 to 89, C = 70 to 79, D = 60 to 69, and F < 60. The seminar grades are based on written comments provided by faculty. A student who is not prepared for their practice talk will receive a 10% reduction in their seminar score. Career Services staff will be consulted in order to determine the student’s mock interview grade.

Research Requirements:
Students will visit various research labs within the department. Students may conduct undergraduate research under the guidance of a faculty member. If the student has been engaged in research the second seminar is to focus on what he or she has learned conducting this research.
Course Calendar:
Students will present their formal seminars during Thursday classes from 4:00-5:00 pm. Students will draw dates and times for their formal seminars. A student’s practice seminar will be given the Tuesday before their formal seminar. Lab visitations will be scheduled within the class periods. A tour of the observatory will be scheduled on a Thursday or Friday evening. A more detailed calendar follows at the end of the syllabus and will be filled in within the first few classes.

ATTENDANCE
Students will earn attendance points based on the percentage of class periods they attend. The total attendance points will be normalized by the number of class periods so that perfect attendance and participation earns 100 points.

<table>
<thead>
<tr>
<th>Tuesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td>Aug 29</td>
<td>Intro, Syllabus, Video on Ethics</td>
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<tr>
<td>Sep 5</td>
<td>Seminar Techniques, Resume, Ethics Survey</td>
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<tr>
<td>Sep 12</td>
<td>Tour Dr. Friedfeld’s Lab, Rm 126</td>
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<td>Sep 19</td>
<td>Tour Dr. Musser’s Lab, Rm 320</td>
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<tr>
<td>Sep 26</td>
<td>Dr. Aul’s Research</td>
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<td>Oct 3</td>
<td>Dr. Ochoa’s Research</td>
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<td>Oct 10</td>
<td>Dr. Adams’ Research</td>
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<tr>
<td>Oct 17</td>
<td>Tour Machine Shop, Rm 401</td>
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<td>Oct 24</td>
<td>PHY/EGR Review for MFT</td>
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<td>Oct 31</td>
<td>PHY/EGR Review for MFT</td>
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<td>Nov 7</td>
<td>Dr. Trikosko’s Research</td>
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<td>Nov 14</td>
<td>Astronomy Research</td>
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<td>Nov 21</td>
<td>Thanksgiving Break</td>
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<td>Nov 28</td>
<td>PHY/EGR Review for MFT</td>
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<tr>
<td>Dec 5</td>
<td>Major Field Test</td>
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<tr>
<td>Dec 12</td>
<td>Finals, NO CLASS</td>
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The calendar is subject to change. We may add faculty talks, graduate student talks and/or alumni talks.
PROGRAM LEARNING OUTCOMES
1. Knowledge of Field: The student will demonstrate proficiency in the basic and applied fields of physics.
2. Problem Solving: The student will develop independent problem solving skills.
3. Laboratory Skill: The student will develop good experimental technique, including proper setup and care of equipment, conducting experiments and analyzing results in order to observe physical phenomena, assess experimental uncertainty, and make meaningful comparisons between experiment and theory.
4. Written Communications: The student will develop effective written communication skills by clear and concise problem solving, well-structured laboratory reports, and accepted formatting of research papers.
5. Oral Communications: The student will develop effective oral communication skills in oral presentations of problem solution, seminars, and oral presentations at scientific meetings.
6. Professional Development: The student will discover the protocols of the professional physicist by attending meetings or giving papers.
Physics 470 addresses outcomes 3, 5, and 6.

GENERAL EDUCATION CORE CURRICULUM OBJECTIVES/OUTCOMES
This course is not included in the general education core curriculum.

STUDENT LEARNING OUTCOMES
By the end of the course, successful students will be able to:
Demonstrate a mastery of oral presentation of physics or astronomy research during two 20-30 minutes presentations.
Learn about the different physics and astronomy research areas available in the Department of Physics and Astronomy at SFA.
Distinguish ethical behavior in science.

EMAIL COMMUNICATIONS
Make sure you always use your SFA e-mail account for network correspondence. Messages from your instructor will be sent to your SFA email account periodically. To get a free SFA email account go to https://apache.sfasu.edu/accountman/. You may forward e-mail from your SFA e-mail address to another address of your choice. To do this, use this link: https://apache.sfasu.edu/accountman/mailindex.html.

ACADEMIC INTEGRITY (A-9.1)
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf
WITHHELD GRADES (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

STUDENTS WITH DISABILITIES
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Students with documented disabilities who need course adaptations or accommodations should schedule an appointment with the instructor as soon as possible.

ACCEPTABLE STUDENT BEHAVIOR
Student Code of Conduct: Policy 10.4
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program. Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This policy applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the iCare: Early Alert Program at SFA. Information regarding the iCare program is found at http://www.sfasu.edu/judicial/earlyalert.asp or call the office at 936-468-2703.

STUDENT COUNSELING CENTER
Rusk Building 3rd Floor
Phone: (936) 468 -2401;
Email: counseling@sfasu.edu
The Student Counseling Center is available free of charge to students and is staffed with professional therapists to meet a variety of needs. All interactions with the Student Counseling Center are guaranteed confidential. Licensed Counselors are available from 8:00a.m.-5:00p.m. Monday -Friday. The department is closed on certain holidays, Spring Break and Winter Break when the university is closed. If you are in need of assistance after hours or on the weekend please call: University Police: (936)468-2608 or MHMR Crisis Line: (800)392-8343. If the situation is life threatening please dial 911.