

## Advanced Major Project Guidelines 2009-2010

1. **Contact Information & Office Hours:** Carl Adams, Rm 1006 Physical Sciences Complex, x5337, in research lab PS 1063, or in undergrad labs 1023/1026 or 1079. Email: cadams@stfx.ca. I am usually in my office or lab from 9 to 5 each day with the exception of classes and labs. Please arrange for an appointment if you would like to talk about something for 10 minutes or more.
2. **Summary:** Students will prepare and present a project based on either original research or some advanced topic in physics. This project will be carried out under the supervision of a faculty member. The purpose of this project is to demonstrate that you can use your knowledge of physics to carry out a research project. You will also demonstrate that you can present this project to an audience.
3. **Website:** <http://www.stfx.ca/people/cadams> and follow the AdvMajProj links. You may also consult the PHYS 493 course outline as a description of the Honours thesis.

#### 4. **Grading scheme:**

The grade for this course is pass or fail. It will be based on an assessment of your oral presentation by the department and an assessment of your paper by your supervisor. You must pass both components. There is no credit for the paper but a passing grade is required for an Advanced Major Degree. (A failing grade would usually result in Major Degree assuming all other requirements for the Advanced Major had been met.) Keep in mind that if you ask faculty members for references in the future almost all of them ask for an assessment of oral and written presentation skills.

If you receive a failing grade you will receive a written report explaining our reasons.

5. **General:** I refer your attention to Section 3.9 of the Academic Calendar **Regulations on Plagiarism, Cheating, and Academic Dishonesty**. These regulations extend to material and data copied in labs as well as exams, midterms, and assignments. I support a safe classroom environment free of harassment or discrimination for all students regardless of race, religion, gender, sexual orientation, gender identity, or disability.
6. **Expectations:** There are several components required to successfully complete an Advanced Major Project. Briefly
  - (a) Select a supervisor and general topic for your project and inform me by no later than September 30 (see Academic Calendar). If you are interested in a topic, don't hesitate to ask a faculty member to serve as your supervisor. It is part of our job here at St. FX and meets the larger goal of training as mandated by our granting agencies. It is not necessary to have worked with a supervisor during the summer or that the faculty supervisor be a member of the physics department. (Physics content in the project is required.)
  - (b) Work in conjunction with the physics seminar coordinator to schedule your presentation and provide the coordinator with an abstract one week prior to the talk. See the numerous posted abstracts of regular seminars for a guide to abstract writing. You may give the presentation at any time through the year but you may find the reserved slots at the end of the academic terms more convenient.

- (c) Prepare and present your talk. The talk should be 15-20 minutes in length with 5 minutes for questions. See further guidelines below.
- (d) The due date for the written paper is set in the Academic Calendar. For the 2009-2010 Academic Year the due date is March 31, 2010. At this time provide copies of your thesis to your supervisor. At the discretion of your supervisor he or she may be satisfied with an electronic copy. I require a hard copy for the department records. I can either receive a hard copy directly from you on the due date or a “clean copy” from your supervisor once they have finished with it. Keep in mind that the paper to a certain extent is “published” and public. Other students and professors may access it now and for the indefinite future. (The mark and our comments of course remain private.)

## 7. Guidelines

See your Advanced Major Project as your chance to do some research into an area of physics that you find interesting. The presentation is your chance to tell the department (at a level of a student completing 3rd or 4th year undergrad) about the interesting aspects of the project, the relevant physics, and what you have done. Our expectations will be a well organized and professional presentation and paper. We also expect that you will be able to answer questions pertaining to the project. Possible Advanced Major Projects would include: a summer research project carried out with a faculty member or some aspect of that project, a variation or extension of an experiment or assignment question you may have encountered in an advanced undergraduate course, or a cross-disciplinary topic. Your supervisor and I will be your guides to a suitable project.

Your supervisor is the key contact for guidance and assistance. Your supervisor will also be responsible to provide you with the necessary resources to complete the project. Notwithstanding informal office/study use by all physics students, room 1031 is formally set aside for your use should you require it. Your supervisor is not expected to act as your personal “Google” or “Wiki”, conclusion maker, code checker, or copy editor. Most supervisors will be disappointed with incomplete work, thought, or effort on your part.

Keep in mind that you have taken a large number of physics courses from us. Don’t abandon the knowledge and expertise you have gained and exchange it for formulas and figures taken from the internet! Also graphs have labels, lines have slopes, formulas sometimes have vectors, notation may need to be explained, we use the English language.

Practicing your talk for duration and delivery with a few friends and/or your supervisor is almost essential. One source of further advice (suggested by Peter Marzlin) is *The Craft of Scientific Presentations: Critical Steps to Succeed and Critical Errors to Avoid* by Michael Alley ISBN 0-387-95555-0. It is not in our library but is available from Dalhousie.

The marks that we give on this presentation do not necessarily reflect a certain percentage ascribed to each part of the talk but how well each of us thought you achieved your goal. The mark is determined as an average of marks given by physics faculty members present at your talk. I will give you your mark and a summary of comments from the faculty by no later than early January or 1 week after your talk if your talk is in January.

Coordinate use of the presentation unit and any computer issues with the seminar coordinator.

The written project should include at least an abstract, an introduction, summary, and a scientific bibliography with references. The body of the thesis will vary with the type of project but should include enough background to connect to the topics introduced in your courses. Acknowledgements may also be appropriate. Please ask for previous projects or have

a closer look at the structure of papers in the literature for clues to appropriate style. Editing of the paper would be handled between you and your supervisor prior to the deadline. The copy received on that day should be the final one.

8. **Deadlines: If you can't make the deadlines please contact me well in advance.** I don't have a formal penalty system set up for late work but I do need to enforce fair standards. I may request at least a verbal progress report from you or your supervisor at short notice throughout the year.
9. **Discontinued Projects:** There may be times when you decide to not continue with the project or times when I feel you will not attain a passing grade (based on discussions with you and/or your supervisor). Contact me ASAP if you feel this is the case.