

Physics 495 – Senior Project

Information Sheet

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Senior Project is the capstone course for the Physics/ Computer Science major, and is the only course required in the major that is not part of any other physics or computer science degree program. It has the explicit goal of having you bring together all of the knowledge you have gained, and skills you have developed, from your study of computer science, in order to apply them productively to a physics-related problem.

The goal of this course is for you to create, either in software or hardware, something which will be useful in either a physics teaching or research context. That is, the deliverable should have the aim of being productively used either by students in a USC physics class, or by researchers in a USC physics laboratory.

Requirements:

1. Project Mentor. You must identify a member of the faculty of the Department of Physics & Astronomy to serve as your Project Mentor who will guide and direct your project. The term “member of the faculty” includes all faculty in the Department, including not just those whose primary appointment is in the Department, but others with a joint appointment in the Department, as well as RTPC faculty. The Department web site contains [a complete list of all faculty](#). **You must secure a faculty mentor and have your project description approved by me by Friday of Week 3 of classes.**

2. “Class” Meetings. You and your Project Mentor must meet weekly for review of progress and possible reassignment of effort. It is recommended that this weekly meeting be scheduled for a standard 50-minute class period, though there is no requirement that the meeting time must be the same day and time every week, nor is there a minimum required meeting time.

3. Project Description. You and your Project Mentor must first decide *together* on an idea for your project. To document your intention you must then write up a short (*i.e.*, one page or so) Project Description including the following elements.

- A description of your intended deliverable. Describe your project’s goals. If software, list the language(s) you will use or software platform(s) you will extend, and indicate the format of the deliverable (*e.g.*, web site, software library, standalone executable). Identify any limitations to your deliverable’s use (*e.g.*, restricted to PCs only, or to a specific research laboratory).
- The audience which your project is intended to benefit.
- An explanation of how your project will help the intended audience.
- Your intended timeline for development. This timeline must include a (small) set of

milestones by which time specific deliverables will be provided or specific features of the project will be completed. (Note: These milestones will provide you with guidance during

the term as to whether your original project idea will be able to be completed, or whether it will need to be scaled back, in which case a revised project scope, timeline, and set of milestones should be constructed and replace the original.)

This Project Description must be signed by both you and your Project Mentor, showing that you have both agreed to the proposed work product. A copy of the fully signed Project Description must be attached in a single email to both your Project Mentor and the Director of Undergraduate Studies. **The deadline for receiving the project description by email is the Friday of the third week of classes.**

4. Teams. While most PHYS 495 projects have been constructed by a single student, if needed, multiple students may team together on a single project. The weekly “class” meeting must be attended by all project personnel, not just a single representative of the student team.