

PHYS 590: Research Thesis

“Investigation of a contemporary research topic in physics or astronomy under the supervision of a faculty member, and leading to a written thesis and both oral and poster presentations of the results.”

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<https://www.queensu.ca/academia/wright/>

Goals of PHYS 590

- Carry out original research using the methods of experimental physics, data analysis and modeling, theoretical and computational physics, and/or observational astronomy
 - Delve into a subfield of physics under the guidance of a member of the faculty
 - Participate in an active research program. PHYS 590 students often interact with the graduate students, postdoctoral fellows, and collaborators of their supervisor.
 - Some projects offer an opportunity to publish
- Develop the communication skills of a physicist
- More than any other course, PHYS 590 is the closest approximation you'll have to what is expected of a research MSc thesis.
- For those thinking of graduate school, a strong letter from a thesis supervisor is often the key to a successful application.

What to expect

- Significant time commitment towards your research
 - >10 hours/week typically
 - Mostly self-directed: expect your advisor to guide you, not tell you what to do.
 - You are responsible for making and keeping to a reasonable schedule!
 - Can be challenging to keep the project on track in spite of nearer-term deadlines from other courses.
- Two set of major deliverables:
 - Midyear (~December)
 - Written report & Oral presentation
 - Final (~March)
 - Written report & Poster presentation

Selecting a Topic and Supervisor

- Incoming 590 students select their advisor at the end of the preceding year
 - Ensure that everyone is ready to get off to a quick start in the fall
 - This is NOT meant to indicate that you should spend all summer working on your thesis!
- Some possible topics have been posted on the course web site
 - <https://www.queensu.ca/academia/wright/teaching/phys-590-2026-2027>
 - The list will be updated as more suggestions come in
 - Note that not all faculty get the chance to submit research questions, but most have ideas. Feel free to reach out to faculty who don't have projects on the list if you are interested in their research.
- If you have an area of interest but aren't sure who to talk to as a potential supervisor please let me know

Topic Selection Timeline

- Before April 15th:
 - Explore potential topics, discuss with potential supervisors.
 - Do not commit to a supervisor (or expect them to commit) to allow everyone some “shopping time”
- After April 15th, and before May 31st:
 - Confirm with the supervisor you would like to work with
 - Email me to let me know who you will be working with
- There will be email communication, and probably an organizational meeting early in fall term 2026 to get things started. You are of course welcome to begin discussions with your supervisor before that!

It is important that you email me once you have selected your supervisor, as I will not have a class list to follow up with.

Feel free to contact me at any time if you have questions or if you are having trouble finding a supervisor.