

Research with Midshipmen Panel Tips and Takeaways

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Recruit based on student interest:

- *Have the faculty brief students on what the faculty are doing in their own research. This could take the form of a crowd-sourced brief that the faculty build (e.g., each prof. contributes 1-2 slides).*
- *Ideally, students will have a personal interest and investment in the faculty member's research.*

Establish a Schedule:

- *Start early, even before you are ready. It can take a long time to settle on the right research question and topic. Starting as early as possible, even in the 3/c or 4/c year will give you a lot of time to work together. Those early meetings need not be part of an official course, Later you can do 1-credit research courses before jumping into a more significant 3-credit research course.*
- *Schedule the research times as a course so both faculty and student have set times to devote to research and collaboration (more important for lab-intensive projects or those where mentor must provide supervision in lab)*
- *Sit down with each student and map out the minimum amount of time per week that you expect her/him to devote to the project. Hold the student to tangible, measurable output. Make them account for the time spent (or not).*

Set Expectations Clearly:

- *Be very clear about end of the year goals and expectations. How often will you meet? What will be discussed? How should the student proceed?*
- *At the beginning of the semester, with your mid, develop some concrete milestones or deliverables for the 6-week and 12-week marks, and agree to what the end goal of the research project is; discuss expectations and how grades will be determined*

Encourage Success:

- *Use small skill-building exercises to develop the student's expertise throughout the semester/year. This is applicable to all disciplines. Could be coding, could be using advanced equipment, could be footnoting.*
- *Train midshipmen to conduct research. They won't know what skills they are missing and by giving them exercises to practice those skills, you'll set them up for success later. For instance, if your midshipmen don't know how to format a bibliography, give them an assignment to do so (and do this before they need to do it for a paper!). Or if you want your midshipman to develop strong technical writing skills, give them a paragraph from a past capstone and ask*

them to take an hour and rewrite it, saving each of their drafts for your review. That should help them see how much importance we put on writing well.

- *Research is an apprenticeship. You will have a closer relationship with your research students than you will with the majority of other students you interact with. Invest the time in giving them the tools to succeed: everything from how to conduct and write a literature review, to how to plan and execute an experiment, to how to conduct an analysis and present the results professionally. If you are patient and caring but also candid and methodical, the experience can be rewarding in the sublime.*
- *Commit your student to presenting their work. Either on the yard or at conferences and meetings.*

Allow students to grow:

- *Start the project by outlining the final product, be it a journal article, report to a sponsor, etc. Even if half of it turns out to be wrong in the end, it offers a starting point and a clear vector in the direction of progress.*
- *At the beginning of the project, be very detailed in your direction to the students. One might call this micro-management. Tell the student what you want them to do and when you want it done. Provide clear, constructive, detailed feedback on every assignment. As the semester or year progresses, push more of that responsibility onto the student. It's been my experience that by the end of the project the student is running the whole show.*
- *Economies of Scale. Consider taking on a research student from each cohort. That may sound like a lot, possibly four different research students. But there are advantages of having a larger program. For instance, you can have the senior students help train the junior ones and you can often meet together to discuss common concerns.*

Remember to Write:

- *Make documenting work electronically a priority early and often.*
- *Don't leave report writing until the end of the semester; have the student start writing parts of their reports as the semester progresses which will allow time for editing and reflection. For example, by 6-weeks, a motivations/background section could be written and an outline of the experimental section or methodology could be included; by 12-weeks, the experimental section can be written including some results/discussion*

Cite like a Champion:

- *Have students use [Zotero](#) or something similar for writing, citing, and note-taking. It can be used collaboratively, too. The style repository currently has 9000+ formats available from a wide variety of disciplines*

Have Fun!