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How to Be a Successful Undergraduate Researcher: Tips to Maintain the Mind and Body

To succeed in today's world, we must maintain motivation and drive in order to become high-performing workers. During their college years, students must develop characteristics and skills that allow them to maintain productivity, produce superior work, and balance their personal life with their work life. This all requires a commitment to time management, essentially the ability to balance projects and meet deadlines, while maintaining a personal life outside of a "to-do" list.

Many colleges and universities encourage highly qualified students to conduct research in campus laboratories. Less commonly are undergraduates offered internships or other research opportunities at an undergraduate university, outside of class laboratories, even though research is an integral part of most institutions. Research is necessary for improving our current lives and ensuring the success of our future. But even on campuses where undergraduates are offered research opportunities, they often find it difficult to make time for such work in addition to a rigorous class schedule, a job or two, club meetings, and other extracurricular activities. Nevertheless, conducting research as an undergraduate can be valuable in helping develop a student's skills in time management.

This past spring semester, I was an undergraduate enrolled in 18 credit hours of coursework while holding three jobs. I was also a member of a club that met on campus. Additionally, I conducted research on science pedagogy. Without time-management skills, I would not have been able to consistently meet all my responsibilities. Throughout my time as a research student, I have learned a few strategies to manage my time more effectively. They are discussed in the following and summarized in Table 1 below.

Tips for Developing a Research Mindset and Staying Healthy

Tip 1: Create a research calendar or timeline. Timelines help keep student researchers cognitively engaged throughout the semester and avoid periods of unproductivity. Goals are more easily accomplished when they have an explicit completion date. Each semester, I work with my mentor to create a calendar of projects with completion dates. Maintaining that calendar helps me stay on track and plan my weeks so I can be continuously productive.

Table 1. Summary of Goals, Strategies, and Outcomes of my Undergraduate Experience

| GOALS | STRATEGIES | OUTCOMES | TIPS* |
|-------------------------|---|---|--------|
| Completion of project | Form timeline with mentor; remain disciplined | Improved critical thinking skills; positive reinforcement and continued motivation; potential grant awards or conference awards | 1-3 |
| Presentation of work(s) | Peer and external feedback; maintain productivity | Peer feedback at conferences; improved communication skills | 1-3, 5 |
| Publication(s) | Maintain research mind and healthy body | Improved communication skills and collaboration skills | 1-5 |

*These tips correspond to the tips described in the text.

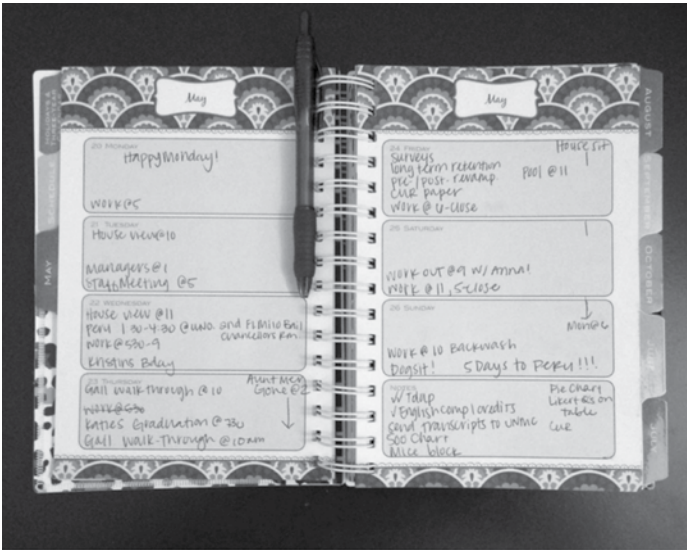


Figure 1. Create a timeline. A weekly planner that lasts longer than a year is ideal. I also try to buy a decorative planner so I enjoy looking at it every day. I maintain its organization and often highlight jobs or projects. At the end of the week, I can write a to-do list or even ideas about research in the "notes" section. My mentor and I have been successful with Friday deadlines. Therefore, every Friday I have a list of things to complete during the following week.

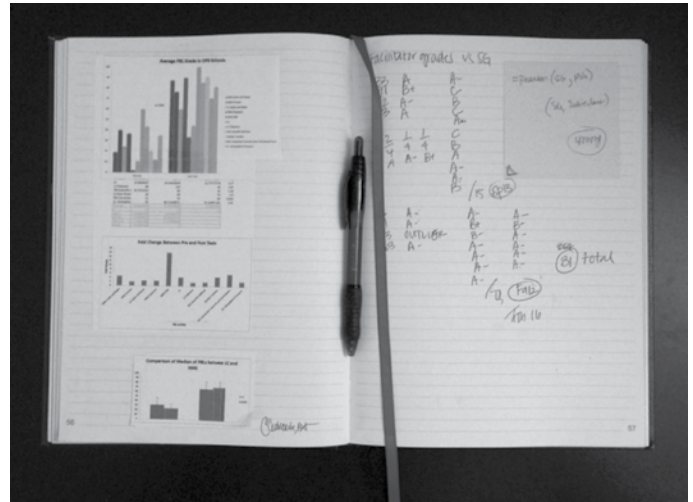


Figure 2. Carry around a journal. I use my journal to keep data, such as graphs. I also use it to keep notes and jot down ideas that develop during research time and "down" time. When I am ready to analyze data, I can look back through my journal for any necessary data.



Figure 3. Use "down" time efficiently. I enjoy the outdoors and staying active. I try to run throughout the week to help de-stress my body. One of my favorite running locations is at Zorinsky Lake, and this is a photo of my favorite location on the trail there. When I reach this point in the trail, I often relax and enjoy the view.

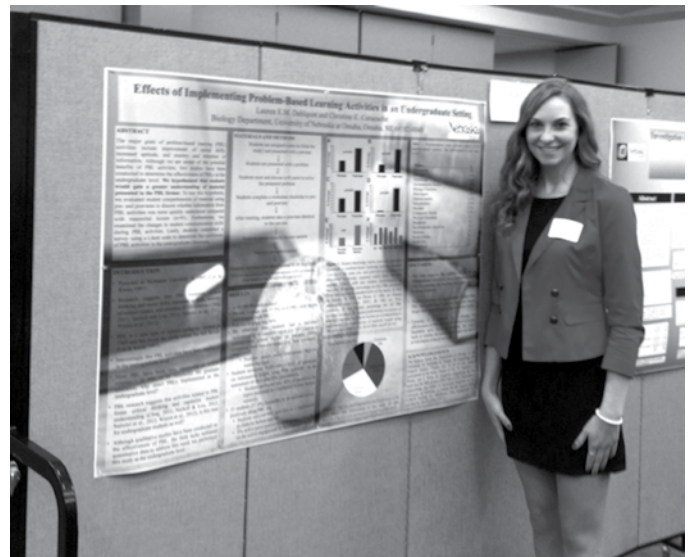


Figure 4. Embrace your research. This photo shows me presenting my research about problem-based learning (PBL) at the Research and Creative Activity Fair at the University of Nebraska at Omaha. I love computing and analyzing data. I embrace my research every day because I know it will help people mature and succeed in their education.

Tip 2: Carry around a journal. A journal of any type will help a student remember any ideas that come to mind regarding the research. The process of writing ideas down makes it possible to review them at a later time and eliminates the stress of worrying about forgetting useful thoughts. Carrying around a journal helps me keep my mind focused on research when I am conducting it and allows my mind to relax outside of research time.

Tip 3: Use non-research time efficiently. I enjoy exercising to de-stress, but any type of break can help you organize your thoughts. Running helps me organize my mind and set priorities for the rest of my day. If you do not enjoy exercise, “down time” can include cooking, cleaning, or relaxing.

Tip 4: Embrace your research. True passion and honest interest help me do what is required of me in research analyses and computation. A dedicated relationship between the researcher and the mentor will create a friendly atmosphere that may help spark critical thinking and productivity. I embrace my research because I know the information that I discover and disseminate will be of benefit to others. I look on disseminating my findings as a way for other researchers to look at what I’ve done and expand upon it to explain important concepts more thoroughly.

Tip 5: Maintain your physical well-being. Getting a degree is difficult, given all of the time commitments I’ve outlined above. If students are feeling sick or exhausted, it is difficult to stay motivated to study or conduct research. Thus, an integral component of being a successful student is getting enough sleep and eating a healthful diet to maintain your overall well-being. Maintaining your health and well-being ensures that you will have the stamina to work through strenuous research, as well as outside activities and family commitments. Communicating your current course load, work load, and stress level to your mentor may allow him or her to give advice or make adjustments that will help you to stay focused, balanced, and productive.

Conclusion

It is an honor for undergraduates to participate in undergraduate research, so research students should do everything they can to take advantage of the opportunities presented. An effective balance between the research mind and physical body is ideal for the utmost productivity in research. The opportunities presented to undergraduate research students are endless. Success in our research will provide us with critical-thinking skills, collaboration skills, and communication skills that a general education cannot provide. Success in our coursework and extracurricular activities, with an emphasis on research, will pave the pathway to success in our future careers. More jobs will be available to research students, and our critical-thinking abilities may help us grasp new experiences quicker than our classmates.

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Lauren Dahlquist is a junior pursuing her bachelor's of science in nursing at the University of Nebraska Medical Center with prerequisite completion through the University of Nebraska at Omaha (UNO). Dahlquist is an undergraduate researcher at UNO focusing on science pedagogies. Her research interests are founded in problem-based learning and its effectiveness in different facets. She has received funding through a University Committee on Research and Creative Activity grant through the Office of Sponsored Programs at UNO (2013). Dahlquist was awarded 2nd place at the SigmaXi Scientific Research Conference (2013) and has three papers currently under review: i.) A review of the last decade of research in problem-based learning, ii.) The effectiveness of problem-based learning activities as compared with didactic lecture in the undergraduate classroom, and iii.) Student-run small group participation in PBL activities: the facilitator has the upper hand. Dahlquist plans to pursue a PhD.