

# **The Indispensable Guide to Undergraduate Research**

Success in and beyond College

University  
of  
California  
Press

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family and do better putting off assignments and classes. You need to decide what is best for you and, as long as you communicate with faculty and your institution, you can handle the situation in your way. In some cases, such as a personal or family illness or medical emergency, you can withdraw from the semester, which allows you to leave school and make up the work at a later time. If working through the challenge by staying enrolled in school for the semester may hurt your mental or physical health or your academic performance, withdrawing might be a good option to consider.

## CONCLUSION

You are now ready to turn your attention to the mentor relationship. Such relationships take time but are worth it because they lead to a lifetime of learning. Now with a better sense of why you want to do research, what research is, and the time that you have to devote to research, your research relationships will be that much stronger!

## Research with Professors and Mentors

As we have introduced you to college research, we have pointed out that you do not have to undertake this transition alone; there are many people and resources that you can work with on your campus and beyond. Your professors will likely be your most important resources and collaborators as you become a college researcher. In fact, positive relationships with professors are likely to have the longest-lasting impact on your personal growth and academic development (Malachowski, 1996). The Gallup organization recently polled 30,000 college graduates to see what academic factors contributed most to their happiness in their work. They found the most important things were: (1) a professor who cared about them as a person, (2) a professor who got them excited about learning, and (3) a professor who encouraged them to pursue their dreams (Busteed, 2015). From your professors you can learn the processes of conducting, presenting, and publishing research. Professors are also very important for helping you achieve your goals for the future through network connections and recommendation letters.

In many college courses, you are assessed only a few times during the semester. For example, in some classes you will have only two to three exams a semester or a few smaller assignments and one big final paper. Because your grades in your courses are based on just a few chances for evaluation, it is imperative that you see your professors early and often! In some classes you might need to meet with a teaching assistant (TA) rather than the professor, particularly if the class is large. The TA is likely a graduate student in the department and in many cases is at least partially responsible for grading exams and papers. In most cases, the TA will need to dedicate a specific amount of time to help students in your class, so take advantage of your teaching assistant's time and knowledge.

Several research studies have investigated the aspects and benefits of mentorship for undergraduate students from underrepresented backgrounds. For example, Smith (2013), a sociology professor, interviewed undergraduate students and their mentors. She created a model for mentoring

undergraduate students that focuses on unveiling the hidden curriculum, or the often-untaught skills, strategies, and knowledge necessary for success in college and after. Smith found that when students established relationships with professors, especially early in their college careers, they were able to maximize their opportunities for graduate school. This finding has been replicated by other researchers as well, such as Saddler (2010), an education professor, who explored mentorship in summer research experiences specifically.

In this chapter you will learn more about how to approach professors by email and during office hours. You will also learn how to build positive relationships with your professors and find research mentors who will assist you with research opportunities, offer individual support in developing academic and professional skills, and write strong recommendations for you as you pursue graduate school and careers after college. We encourage you to visit your professors during their office hours and ask them some of the questions that we pose throughout this chapter and questions that you think of while reading this chapter. Read Textbox 4.1 to understand key terms we use throughout this chapter.

### NAVIGATING THE ACADEMY: WHAT IS A PROFESSOR?

So what exactly is the job of a professor? What do they do? How are professors different from high school teachers? Ask your professors for their take on the answers! Although on the surface it might seem that the teachers you had in high school and the professors at your college do similar things throughout the day, the two roles often comprise different responsibilities. One big difference is that professors often divide their time between teaching, researching and writing, advising students and often other faculty, service (including serving on committees at their colleges and serving their academic areas and the community), and outreach. How much time they devote to each job area largely depends on their position and their school. When you find a professor who can serve as a research mentor, you will not only learn about research, but also about what it's like to be a professor and even how you could become one. When you understand the jobs of professors and the structure of the university, you can navigate your college more successfully as an informed scholar. In particular, the information below can help you decide whom you'd like to consider as a faculty research mentor.

If you've already looked up some of your professors on your college's website, you may have noticed that there are different titles for faculty members; these titles are explained in Table 4.1. Some of the faculty who teach your classes are *tenure eligible* (also called *tenure track*) and others might

TEXTBOX 4.1: KEY TERMS

- Advisor:** usually a professor who acts in an official or assigned role. You will probably call the professor who supervises your research project or honors thesis an advisor. Although an advisor is an official role, you will probably have to seek out a research advisor on your own. This chapter will help you with that process.
- Mentor/Research Mentor:** usually a professor who acts in a less official role than an advisor, but note that an advisor is often also a mentor. You might consider any professor who gives you sustained guidance in academics or research a mentor or research mentor. As with an advisor, you will probably need to seek out research mentors on your own. The section “What is a Mentor?” will explore the role of a research mentor more closely. In this chapter, we realize that you will be working with both research mentors and advisors, and we use the terms interchangeably.
- Faculty:** usually a college/university employee with an academics-related appointment, including teaching, research, and/or academic administrative positions. We will look at different academic positions in the next section.
- Professor:** sometimes synonymous with *faculty*, and sometimes referring to a more specific position or set of positions. We’ll define this further throughout the chapter.

Table 4.1. Titles of Faculty at American Universities

Tenure-Eligible Faculty	Non-Tenure-Eligible Faculty
Assistant Professor: usually 6 years	Adjunct Professor: teaches courses with no research responsibility
Associate Professor: tenured	
Full Professor: highest promotion	Visiting Assistant/Associate Professor: teaches courses and may do some research
Department Chair: heads an academic department	
Emeritus Faculty: retired professor who still contributes to the college	Clinical/Of the Practice Professor: provides practical instruction/supervision and application of practical knowledge
Dean: presides over a specific academic unit (e.g., Arts and Sciences)	
Provost: senior academic administrator	Instructor/Lecturer: teaches courses
President: presides over entire university	

be *non-tenure eligible* (also called *non-tenure track*). Just as you are working toward graduation and graduate school, your professors are working toward the next step in their careers. When tenure-eligible faculty are hired, they are referred to as assistant professors and begin a probationary period (typically 6 years), which is followed by an evaluation. Earning tenure means that a professor has passed through the probationary period and is then called an associate professor. Earning tenure provides increased job stability. Generally, tenured professors cannot be fired without due process. Increased job stability can have several benefits, including flexibility in research and teaching. For example, faculty who receive tenure can start investigating a new research area or develop a new class without risking a major career setback if the research or class is unsuccessful. Say you have a research idea that a tenured professor isn't necessarily an expert in; the professor may be willing to learn more about that area and spend time supporting your research project because of the job security associated with tenure. Tenured professors may also do research in more risky or controversial areas because tenure ensures job security and protection. Several years after earning tenure, associate professors are evaluated for promotion to professor, often distinguished from other types of professors with the title full professor.

Evaluation for tenure and promotion often includes review by administrators and peers at the college and/or at other colleges. Faculty are often evaluated on three tiers: research, teaching, and service. For research, professors need to engage in scholarly activities such as conducting research and publishing in peer-reviewed journals or books, as well as presenting research at conferences. The tenure process is usually 6 years long, in part because publishing research can take a long time. Faculty may be judged on the research quantity, research quality, and the prestige of publication and presentation venue (e.g., reputation of the publishing company, academic journal, or conference). For teaching, professors are evaluated on the type and number of classes they teach and the quality of their teaching as evaluated by other professors and by students. For service, professors are expected to serve on committees at department, college, and national levels. Although most colleges use this three-tier system, the degree to which research, teaching, and service is valued differs depending on the goals and size of the college. Other colleges may also branch off from the standard system and include evaluations based on outreach and work on diversity and inclusion. Understanding how your professors spend their time and how the college evaluates its employees will help you understand and navigate your college.

In addition to the titles professors can earn, there are also administrative positions that they can apply for. For example, a professor, usually after becoming a full professor, might become a chair of a department, which



is a leadership position within a given department. A professor might also become a dean of the whole college (if the college is small) or of a group of faculty (e.g., science departments) or of a school within the college (e.g., School of Education or Business, if the college is larger). For these positions, faculty focus on overseeing a group of professors and working with different departments and schools across the campus. Although these positions can be prestigious and sometimes provide opportunities to improve the college, professors in these positions typically have less time for teaching and research because of their additional administrative responsibilities. If you ask your professors, they will likely be forthcoming with you as to why they chose their administrative position or why they didn't become an administrator. If you come across an emeritus professor, that's a tenured professor who is retired and has been approved to keep certain benefits from the college such as office space or access to library or other campus resources.

In college you might have classes taught by graduate students, teaching assistants, or non-tenure-eligible faculty, who may have titles such as instructor, lecturer or senior lecturer, visiting professor (hired for a temporary time period), affiliated faculty/professor, executive professor, professor of the practice, or clinical faculty/professor. Many of these titles are used differently at different colleges, but most of them often indicate that teaching and/or directing is the primary responsibility of the professor. Non-tenure-eligible faculty typically do not have many research responsibilities, although many of them have research experience and advanced degrees that require research and therefore they are often excellent research mentors. The last two titles, however, professor of the practice and clinical professor, are professors who are hired to teach in areas such as business, education, or medicine based on their professional experience, and so they do not necessarily hold advanced degrees. Non-tenure-track faculty may work full-time or part-time; part-time faculty are often called adjunct professors.

The role of mentorship and research in tenure/promotion evaluations varies across colleges and departments. Some schools and departments highly value research mentorship of undergraduate students, whereas others attend more to the professor's record of mentoring graduate students. Others do not count mentorship toward tenure and promotion. Thus, some professors who have an incentive to be thoroughly committed to undergraduate students may not have time to devote to research. Other universities and departments conduct evaluations that attend primarily to the quantity and quality of research publications a professor has, so such a professor might not have time to mentor undergraduate researchers. But within each type of institution and department are professors who choose to work with undergraduate students on their research for all kinds of reasons—and we'll help you find those faculty.

Undergraduate research mentorship is a great way for professors to combine their focuses of research and teaching. Some professors run research groups or labs with both graduate and undergraduate students in order to bring together different perspectives and skills, create a chain of mentorship, and help students succeed. Some professors prefer to work with undergraduate students rather than graduate students because they find that their own research projects and the field of research in general benefit from the fresh perspectives of newer researchers. Some professors themselves had impactful faculty mentors when they were undergraduate students and want to pay it forward. Still other professors are looking for undergraduates to do the technical work of research and/or to make sure that they have enough researchers to get all of the work done. Many professors—like us—choose to work with undergraduate researchers because of all of these reasons! There are also professors who choose not to work with undergraduate researchers. See Textbox 4.2 to learn more about why, as well as to learn answers to other questions you may still have about the professor life.

Now that we've shared what a professor is and does, let's look at what it takes to find a professor who can be a research mentor.

### **WHAT IS A MENTOR?**

What can you expect from a research mentor? As with professors in general, what a research mentor does depends upon the nature of the research, the mentor's view of work with undergraduates, and the culture of the mentor's discipline, department, and/or college. Several researchers who themselves mentor undergraduate students have written about what good faculty mentors do and can do. A brief review of these mentoring strategies will help you know what you might want to look for in a mentor, and help you ask and answer questions so that your mentor can offer you the best guidance possible. Some researchers who study mentorship, such as Buffy Smith from the University of St. Thomas in Minnesota, focus on mentorship for underrepresented students. Based on her research interviews with students and mentors, Smith (2013) explains how faculty mentors use the long-term goals of their mentees to motivate students to develop their writing skills and to learn how to seek research opportunities. Your faculty mentor can best serve you if you share your goals for later in college and after college, and then ask questions about how you can use research to achieve them.

Other mentorship researchers, such as Gina Wisker at the University of Brighton in England, focus on research mentorship for student-led projects like honors theses. Based on the research literature on student mentorships

**TEXTBOX 4.2: Q & A ABOUT PROFS AND WHAT THEY DO**

Q: What are some typical reasons that people want to become professors?

A: A great question to ask professors in office hours, as the reasons vary greatly! A professor might be devoted to students, teaching, research, writing, their discipline, or a life of the mind. A professor may have been drawn to the flexible schedule, the stability of tenure, or the prestige of the position.

Q: What happens if a professor doesn't earn tenure after the probationary period?

A: First, know that there are many reasons that a professor might not earn tenure. A professor may find that their work—be it teaching, advising, research, or outreach—is not valued within their department, discipline, or college. The professor may then find a good tenure-track position elsewhere. Discrimination can also prevent some professors from earning tenure. You can learn more about discrimination in tenure and promotion in the section “The Role of Underrepresented Faculty and Intellectual Areas” later in this chapter.

Q: Why do some faculty *not* have opportunities to work with undergraduate researchers?

A: Just as with reasons that faculty *do* work with undergraduates, there are many reasons why faculty might *not* work with undergraduates, often including structural barriers: preference or need (for evaluation purposes, for example) to work independently rather than collaboratively, little money available to fund undergraduates, advising taken up by graduate student mentoring, and specific discipline, department, or college values.

Q: What is sabbatical, and how can it impact my working relationship with a professor?

A: If a professor is *on sabbatical* they have been granted a semester or more of paid leave from teaching, committees, etc., usually to work on research. Some faculty will be unreachable during a sabbatical, others will be reachable only electronically or by phone, and still others will remain on campus. Some faculty don't have sabbaticals or they have to pay for them. If you have a new research mentor or are trying to reach a professor on sabbatical, make sure to ask about how the professor's leave might impact your research relationship.

We also encourage you to ask your own professors these questions.

and her own research interviews, Wisker (2005) advises research mentors to collaborate with their research mentees to set communication strategies, expectations, agendas, and timelines. Faculty mentors may have different strategies in communicating with their students. Some prefer to meet on a regular basis with their research students (e.g., weekly) while others take a more hands-off approach and check in more intermittently. In your initial meeting, ask the professor about these expectations for communication. If one of these communication styles suits you better, your preference may factor into your decision about a research mentor. For example, do you want more of a hands-on approach from your mentor or do you prefer to work more on your own with fewer face-to-face meetings? You may also have to adapt your communication strategies if your professor's philosophy does not match up with yours. If you are unsure about how to ensure effective communication, ask your mentor so that you won't be left wondering what is expected of you or when, how, and how often to communicate. See below for sections on specific tips for communicating with faculty in meetings and via email. One way to evaluate whether a faculty mentor will be a good mentor for you is to speak with the students who currently work or have worked in the past with the professor. Ask them questions about the professor's communication style, their management techniques, and the skills that the students have been able to garner from this relationship.

A good research mentor should also help you realistically manage your time and develop your writing skills (Wisker, 2005). In order to make the most out of what your research mentor has to offer in time-management and writing skills, read Chapters 3 and 5 of this book and use them to prepare questions for your mentor about how to take your skills to the next level for research work. According to Wisker (2005), the job of a research mentor is to "[h]elp students to help themselves and each other" (p. 159). Your mentor should be offering plenty of guidance, but not necessarily telling you directly how to undertake your work. Remember that with research, there is no right answer. If your mentor does not offer this guidance naturally, you may need to ask questions to encourage more guidance. Much like this book, a good research mentor will lead you to ask and answer questions on your own. In the next section, we'll look at finding professors who will be good research mentors.

## FINDING ENGAGED FACULTY

In the previous section we described what a research mentor is. In this section we describe how to find the best research mentor for you—one who is invested in your success and is willing to go that extra mile for you. An engaged faculty member provides a great research experience and a great

research experience. So how do you find an engaged faculty mentor? First, make sure the professors who teach your courses know you early on. Meanwhile, make sure that you are the best possible candidate for working with faculty on research. Before taking you on as a research student or mentee, a professor might want to know if you will meet agreed-upon deadlines, be on time for and attend all meetings, complete necessary research components (e.g., reading, data collection, etc.) correctly and in a timely manner, respond promptly to requests and questions from your advisor, and stay committed to the project. Begin thinking of ways you can let potential mentors know that you will follow through with these responsibilities of a student researcher. Potential mentors might look at your academic record and experience, using your GPA and the courses you've taken to determine your preparation and potential for the research. They also might ask you questions to learn about your ability to meet certain criteria in other areas (e.g., group work in your courses, time management with extracurricular activities), so be prepared. A potential mentor might ask other professors about your academic work, so keep that in mind throughout your time taking classes and interacting with faculty. Reading this book will definitely enhance your research potential as well. In this chapter, we'll also help you plan for communication when things go wrong—know that they may, and that's okay!

Think about your own research interests and then you can look up faculty with similar interests. Getting to know your professors through classes is a great start. You might contact a professor with whom you've taken a class that you found interesting to see if the professor offers research experiences. You can also ask your academic pre-major or major advisor to recommend faculty based on your interests. You can look at professors' LinkedIn profiles or their professional social media websites. You can look at faculty pages on your college's website where you might find descriptions of faculty research or links to faculty curricula vitae (CV). A CV is the story of a professor's academic life, structured like a long resume. Looking at a professor's CV can help you answer questions like:

- What research is the professor working on?
- What research has the professor worked on in the past?
- What was the path to the professor's current position? Where did the professor go to undergraduate and graduate school?
- What has the professor written and presented?
- What and how many student theses or independent studies has the professor supervised?
- Has the professor presented or published with students?

To get a more personal sense of what it's like to work with a particular professor, you can talk to students, undergraduate and graduate, with



whom the professor has worked. Other students can give you a sense of the professor's expectations and how receiving research mentorship has helped them with college or enhanced their academic experience. Most professors have a website that provides information about their research interests, their research group, and ongoing and completed projects. Research websites can give you important insight into whether the research this professor does is interesting to you and, just as importantly, if this faculty member might be a supportive mentor for you. For example, a website that features students and specifically mentions undergraduate research as a priority is a good sign that this professor values undergraduate research.

Another great way to find a research mentor is to use the research resources on campus. Many colleges and universities have an office of undergraduate research or another office that supports student research on campus. Ask around or look under the academic or student services link on your college's website. The staff at these offices can help you identify a professor who is doing research in your area of interest. A research or reference librarian at your college library can also be a great resource. You might be able to make an appointment or stop by a research or reference desk at your campus library. A librarian can help you find the professor's dissertation as well as other published work. Make sure to follow the steps above once the staff member has identified a potential professor for you—check out the professor's CV, talk to their students, see what classes they teach—before you send an email.

If you cannot find a faculty mentor at your school because the professors you have contacted are not working with students or because there is no one who is doing research on the topic in which you are interested, a good option is to try to find a mentor at another school. There are faculty at universities around the country who may be working on a topic of interest to you and would be happy to work with an undergraduate scholar. Find a professor in your department to get some direction about whom to contact. Look at the websites of professors at colleges near you to see if anyone is doing work that excites you and send an email inquiring about research opportunities. See the Email section below for tips about how to communicate with faculty about research opportunities. In addition, there are many really great opportunities for paid summer research experiences at other institutions. See Chapters 2 and 3 for more information.

## Email

With some potential research mentors, email may be one of your first means of contact. Even if the professor wants to meet you in person initially, you should use email as a way to set up this meeting. We recommend that your

email be no longer than one short paragraph—your professors are busy and may get hundreds of emails a day. You can start by introducing yourself briefly—name, year in school, major or intended major—and stating your interest in research. Then, ask about the professor's schedule or office hours. Show your commitment to working on research by accommodating the time that the professor has already set aside to work with students. Once you have confirmed a time to come to office hours or another time for a meeting, you might also ask if the professor would like to be reminded on the day-of. Some prefer a reminder (especially if you've made the appointment well in advance) and some don't. When emailing professors, pay special attention to wording and format. Find tips in Textbox 4.3.

### **Office Hours and Appointments**

Office hours are a time when you can walk in and talk to your professors about any ideas or questions you may have. Office hours are a great resource if you have questions about class that you can't find answers to on your own. You can also build relationships with professors through office hours. Many students are intimidated by the one-on-one nature of office hours. Remember that your professors were once in your position! It will also help you if you come prepared with an idea of what you might expect, so this section will help you prepare. Chapter 6 can also help you find professors who make you feel welcome.

Some professors may not have set office hours. If you have taken or are currently taking a class with such a professor, check your syllabus for guidelines on how to set up an appointment. You might also find this information on the professor's website. If you're still not sure how to set up an appointment, either email the professor or see them before or after class to verify whether they hold set office hours and to ask how to set up an appointment. Department administrators are also good resources for finding out when professors are generally available; you should be able to look up the administrator's contact information on the department's website.

Upon arriving at the professor's office, be sure to introduce yourself and remind the professor what you are there for (e.g., "I want to find out about research opportunities"). As you get started with research, a good question to ask professors is: "What current or upcoming research projects are you working on?" If you've found a professor who works with undergraduate students on research, it is likely that they will have some research tasks available for you. If not, you can find out what you might do to get involved later on, or ask about other faculty with similar research. You can also ask how to get on track for more independent projects like a thesis, capstone, or independent study (see Chapter 5 for more information on these options).

**TEXTBOX 4.3: TIPS FOR EMAIL WORDING AND FORMAT**

**The subject line:** Be specific! Your professors might receive hundreds of emails daily, so "Meeting," "Research," or "Office Hours" will not stand out or help them easily find your email later. You can be specific by including your name and your status as a student followed by the topic and date(s) if applicable. For example: "Hannah Franz, Undergraduate Student Interested in Research Opportunities" or "Do you have available office hours the week of 9/29 to meet re: undergraduate research opportunities?"

**Addressing professors:** We recommend that you keep it formal unless explicitly told not to: "Dear Dr. . . ." or "Dear Prof. . . ." In person, you can ask professors whether they prefer the title Doctor or Professor. These conventions depend on the culture of the college and of the discipline, as well as on individual preference. In addition, some professors may not hold a doctorate. Some professors are more informal and will want you to call them by their first name. When in doubt, however, use "Dr." or "Prof."

**Length:** For the first email, keep it brief! Pollak (2012) recommends five sentences as a rule of thumb. Later on, more lengthy emails may or may not be acceptable. Once you begin working with a professor, ask how often and for what purposes they like to be contacted by email and whether or not they prefer to have non-logistical conversations over email.

**Closing the email:** Remember to thank professors for their time. We like "Sincerely" for closing, but many academics use "Best."

**Here's a sample email using these tools:**

Subject: Student in Statistics class inquiring about office hours  
Dear Prof. XXXX,

I am a student in your Statistics class and would like to meet with you to go over the last exam. Do you have available office hours this week so I can come by and ask questions about the incorrect items on my test? Thank you for your time.

Sincerely,  
Your Name



**TEXTBOX 4.4:****SAMPLE QUESTIONS YOU CAN ASK IN OFFICE HOURS AND APPOINTMENTS****Get to know the professor:**

- What courses will you be teaching in the future?
- Do you work with undergraduates on research?
- What research projects are you working on or planning for?
- Why did you want to become a professor?
- What made you interested in your research topic?
- Why did you decide to work at this college?
- Give them a compliment on their class or their work! (e.g., "I really enjoyed the last paper you published" or "That class when you talked about 'X' really captured my interest")

**Learn about their research with students:**

- Are there classes I need to take or other prerequisites for working with you on research?
- Are there other students who work with you that I should meet with?
- Are there readings that you recommend I complete before I get started?
- How many hours a week would I need to commit? Would research hours be at a particular time or place?
- Do you have regular research meetings with students? When are they?
- What work do you require research students to turn in to you and how often?
- What are you looking for in a research student?
- Do undergraduate students generally initiate the topics of their research or do they usually work on a project of your choice?

Remember to show your enthusiasm! Most professors love the research topic on which they work, so they will respond well to someone who shares their passion for the area. Once you learn about possible research opportunities, you can ask questions about expectations and preparation for research. For examples of these and other types of questions, see Textbox 4.4.

Answers to the sample questions will help you get to know a professor and their work, including their research. If you are already considering working with the professor on research, the second set of questions will help you decide whether you have the time to commit to a particular research

**ACTIVITY 4.1:****PREPARE FOR YOUR FIRST RESEARCH MEETING WITH A PROFESSOR**

1. Research a professor that you've had in class or that you may be interested in working with. Find the professor's CV and check out their website.
2. On their CV, identify 2-3 works or projects that the professor has written or created. Look for recent works and works that tie to your interests.
3. Find the works through your college library. Read them and see how they fit with your interests and goals.
4. Email the professor and plan to visit them at office hours.
5. Prepare your own CV, resume, or a statement of your skills and experience to bring to the office-hours visit.
6. In office hours, share your goals and interests in research, keeping in mind what you've learned about the professor's work.
7. Ask about current and upcoming research projects you might be able to work on. Be ready to be flexible in your interests based on current projects and available opportunities.

project. You might not get to all of these questions at one meeting, so use a potential research mentor's office hours regularly. Office hours and other research meetings will help you sustain a relationship with a professor, making for extra opportunities to learn about research and potentially to receive a strong recommendation letter!

When you've learned about the time commitment for a particular research project, use your calendar from Chapter 3 to determine how you might fit in the research while staying successful in your classes and maintaining good health. Be honest with yourself and your professor as to how many hours per week you are able to fit in to do the necessary work. We have seen students who overcommit to classes and extracurricular activities, and their research tends to be the work that falls behind. Make sure ahead of time that you will be able to succeed in all aspects of your college life. Then, use your calendar to schedule research time, including lab meetings and office hours, as fixed commitments.

Activity 4.1 can help you prepare for an initial meeting to get started with research.

Scholar Sara Taylor describes the process of communicating with her faculty research mentor after hearing about the mentor's research group through a friend and visiting the mentor's research website:

After I found a lab that was interesting to me, I waited until about half-way through the first semester of my freshman year to contact her so I had time to get used to my classes and college life in general. To get a meeting with one of the professors running the lab, all it took was an email. I was so excited and nervous going into the meeting, ready to talk about my research in high school and make my case for a spot in the lab. Instead, the professor (who has been my research mentor for three years now) explained what kind of research the lab conducted in order to make sure it fit what I was interested in. I have now been working in the lab for 3 years and am currently conducting an honors project. It still amazes me that it all started with an email and a 20-minute meeting.

## **WORKING WITH FACULTY**

### **Finding a Research Topic**

Research mentors who regularly conduct research in a given area can provide the necessary expertise to help you learn about the topic and can oversee your research project. Many professors who work with undergraduates will have research projects that you might be able to work on. Some professors might also supervise a more independent project that you take the lead on. Independent projects can take the form of an honors thesis, capstone, independent study, or summer research experience.

In all cases, you will need to remain flexible on the topic based on factors such as faculty research responsibilities, ethical guidelines, and practical considerations such as what budgets will allow for. Flexibility is part of research—these factors impact both professors and students! At smaller colleges, flexibility may be even more important as you find research mentors, because you are less likely to find faculty whose research aligns with your specific interests. Such flexibility will be important even if you are working on a more independent project, because professors do not always supervise projects that are outside of their area of expertise. For professors seeking tenure and promotion or simply planning their time wisely, it makes the most sense to supervise projects that align with their own current research projects. In some cases, you may need to meet your research mentor in the middle to find a project topic that satisfies you both.

If you can make an argument that your research is important and interesting, and show that you have a strong grasp of the previous work on the topic, the professor will be more likely to support a project you really want to do. It will help if you can justify your interest by knowing how your research is unique and what kinds of problems can be solved as a result. You

will be committing a lot of time to your research project, and it will be much more enjoyable and you will be much more successful if you are excited about the topic. (The three of us all study topics about which we are deeply passionate, and this dedication and enjoyment is key for our surviving the long hours that successful research often takes.) It is important to settle on a topic and a research plan with your research advisor before you begin the time period allotted to your project. If you take the lead on choosing a project topic in which your advisor does not have a lot of expertise, this can be a positive experience because you and your advisor are learning together and discovering a new field for both of you, but it can also take longer to get to the point where you both fully understand the previous research and can design an appropriate project.

Even if you cannot do the exact project that you would like to, remember that you will still be gaining valuable mentorship and learning useful research skills, so keep up your enthusiasm for the work! Just like most professors, you probably have many interests and questions that could spark research. You will work on only one of them now, but once you gain research experience, you will have more opportunities to explore further issues and questions.

### **Sharing Authorship**

Working on research with a professor means you may have the opportunity to present your work at a conference or to submit it for publication in a journal or a book. These opportunities are great for learning about the processes entailed in presenting research, which are often nebulous but can have a number of rewards. One reward is simply the ability to share what you found in your research with other scholars or community members. You can also potentially make a lasting contribution to your field. Presenting research in these forms can yield feedback to help you refine your research project, help you make contacts with important people in your field, and increase your competitiveness for graduate school. So take advantage of presentation and publication opportunities. When presenting and publishing from research you have worked on, you will want to get credit for your contributions, as will the other researchers involved. See Chapter 5 for more about presenting your work and writing for publication.

When working with a professor on a research project, ask early on about the possibilities for presentation or publication. This topic might arise naturally when you and your advisor agree on the type of research you'll be conducting and the scope of your project. If your advisor doesn't bring up presentation or publication, ask about the possibility. For every

presentation or publication, authors are identified as having contributed to the work; sometimes there can be two or three authors (as in the case of this book), but we have seen papers that have more than 20 authors listed! When presenting at a conference, publishing a paper or book, or registering a copyright or patent, researchers need to decide who will be listed as an author on the work. Factors for determining authorship differ by discipline, and sometimes by publication outlet, even within the same field. Although most fields provide official authorship guidelines, authorship decisions are sometimes subjective, dependent upon individual views on ethical authorship. Early in the research project, get a sense of what authorship means to your mentor or advisor and which guidelines, if any, they adhere to.

In addition to deciding who is an author, researchers need to decide in what order to list those authors in the publication or presentation. The order of authors communicates the researchers' relative contributions to the work. The term *lead author* may take on different meanings; the lead author may have initiated the research question or idea, may have conducted most of the research, may have done the bulk of the writing, or may have provided the infrastructural support (e.g., lab space, money) necessary for the project. Authorship order means different things in different disciplines, so ask about guidelines relevant to your discipline, project, and advisor. In some fields (e.g., psychology), the lead author is listed first, whereas in other fields (e.g., physics), the lead author is listed last, and still in other fields (e.g., computer science), authors are often listed alphabetically.

It is important to make sure that your contribution to the research project will be honored in an appropriate way so that researchers in your field and potential graduate schools can identify your contribution. In that initial conversation with your advisor, you should ask about how decisions are going to be made about who will be listed as an author and in what order, as well as who will be responsible for presenting the work or who will be the main contact for the journal, book editor, or publisher. Remember that research is dynamic and changing, so continue to ask questions about presenting, publishing, and authorship throughout the research project.

If you are working on an honors thesis or another more independent project, ask your advisor for guidance on presenting or publishing your work. You will want to ask about authorship in this case as well. Often the student working on the thesis is the lead, but there are exceptions, so ask to avoid surprises from your advisor.

It is important to have ongoing and open conversations about authorship so that you are well positioned to avoid surprises that you might find unfair or unethical. Two such surprises that can occur with research publications are ghost authorship and guest authorship. A ghost author is some-

one who contributed enough, perhaps even a substantial amount, to a paper to qualify for authorship, but is *not* listed as an author on the paper. A guest author is the reverse: an author who is listed on the paper, but who did not contribute enough to qualify for authorship according to authorship guidelines. While ghost and guest authors may sound like extreme examples of authorship issues, both situations occur at a higher rate than you might expect. Faculty and student research team John P. Walsh and Sahra Jabbehdari surveyed 2,300 lead authors on published papers and found that 33% of the papers had a guest author, 55% of the papers had a ghost author, and almost half of the ghost authors were graduate students (Jaschik, 2015; Walsh & Jabbehdari, 2015). As with authorship guidelines, authorship issues vary with discipline, so research the rates in your areas of research. For example, researchers Seeman and House (2010) surveyed 600 faculty in chemistry about their crediting practices and found that faculty were more likely to give credit—in the form of authorship or an acknowledgment—to their own student than to another faculty member's student, when contributions from the students were equal.

Take heart that, as an undergraduate student with awareness about common authorship issues, you are ahead of the game (and ahead of many graduate students) and can anticipate these issues before they arise. So again, ask your advisor or mentor about authorship throughout the research and writing process. For more resources, see The American Psychological Association's guide for student researchers ([www.apa.org/science/leadership/students/authorship-paper.aspx](http://www.apa.org/science/leadership/students/authorship-paper.aspx)).

## Navigating Challenges

Working with a professor offers many rewards, but, as with any form of collaboration, misunderstandings, inability to follow through (on your part or the advisor's part), and other challenges may arise. These challenges will be less overwhelming to you if you are prepared for them to occur. One way to prepare is to talk to other students who have worked with your advisor or with other research mentors. For example, ask more advanced research students questions about what happens when they or their advisor are unable to meet deadlines, respond to emails, attend meetings on time or at all, understand expectations, or stay committed to the research project. If it seems like your advisor is not meeting their responsibilities, continue to ask them questions to clarify those responsibilities. You can ask, for example, "So that I can plan ahead, when should I expect feedback from you on my drafts?" "Should I plan to continue the 1:00 p.m. Tuesday meeting time for the rest of the semester?" "If I have a question, do you prefer that I email



you or come to your office hours or something else?” If it seems that you are unable to resolve differences between you and your research mentor, sometimes it’s best to cut ties and try to find another mentor. As scholar Bailey Johnson (a pseudonym) comments:

My first encounter with a research lab came from one of my favorite professors. She asked her teaching assistant (TA) to reach out to me and give insight on what duties in the lab are. That night, I wrote an email to my professor with a list of questions about being involved in the lab, and weeks went by without a response. I even confronted her after class inquiring if she read the email. She replied, “oh yeah, I’ve seen it. I’m just really backed up on my emails.” As time went by, I only felt more and more awkward about the situation since I was present in her biweekly class and she never mentioned the lab position. I reached out to upperclassmen and other advisors for guidance, not knowing how to confront this situation respectfully and efficiently. I finally got the courage to stay after class and just ask her what was going on. She made it seem like it was my fault and that my lack of communication was the issue. I couldn’t believe it! I ended up turning down her offer, and even applying to participate in a new lab. Now, I’m proudly enrolled in a research lab with another faculty mentor where the communication is 100% better and I feel completely supported.

If it seems like *you* are not meeting your responsibilities, ask your mentor questions to make sure you understand what is expected of you. Try re-evaluating your time management and other skills needed for the project: Are there skills you need to develop to meet your research responsibilities? Let your research mentor know so that you can get guidance. Review Chapter 3 for questions and resources to help you develop time and energy management for research, and read Chapter 5 to learn more about research writing. You can also re-evaluate your enthusiasm for the project: Have you begun to prioritize other commitments? Why might that be? Why were you interested in the project in the beginning? Even if the topic or scope of your initial research interest has changed, consider the benefits of staying committed to the project—what skills, contacts, and recommendation letters are you gaining? The next section will explore ways to add multiple perspectives to your research, which may help reignite your enthusiasm.

## THE ROLE OF UNDERREPRESENTED FACULTY AND INTELLECTUAL AREAS: THE RISE OF RESPONSIVE PROGRAMS

Making your research interdisciplinary is one way to ensure that your focus is unique and significant. In particular, adding a focus from an area that is intellectually underrepresented in the academy can bring important perspectives to your work and help you conduct research that is ethical, representative, and responsive to existing questions and needs. By *an area that is intellectually underrepresented in the academy*, we mean an academic area that addresses inequities in perspectives and in how those perspectives are presented. Such intellectual areas include Africana Studies, African American Studies, Asian American Studies, Ethnic Studies, Native American Studies, Latinx Studies, Sexuality Studies, and Women's and Gender Studies. These areas aim to break down the division between the researcher and the researched, and to use research to draw directly on the perspectives of the community of focus. Research in the academy is becoming increasingly interdisciplinary (Basken, 2012; Petrie, 2007). If you are not already working with a professor in an underrepresented intellectual area, see Activity 4.2 to strengthen your research potential and create a larger base of research mentors.

In any research area or discipline there are many benefits to working with professors who are from backgrounds that are underrepresented among college faculty. In Chapter 1 you read about the meaning of *underrepresented students*. Researchers Trower and Chait (2002) at the Harvard Graduate School of Education collected past and current data on faculty at U.S. colleges by rank, race, and gender. They found an even greater underrepresentation of professors than of students, for both faculty of color and female faculty. Moreover, the overrepresentation of White male faculty increases as faculty rank increases. At the beginning of this chapter, you read about faculty rank and the tenure and promotion process. Faculty from underrepresented groups can face discrimination in this process when, for example, the perspective of their research is undervalued or they are asked to serve, as a token member, on more committees than others, cutting back on the time they have available for other projects (Trower & Chait, 2002). Faculty without tenure and aspiring faculty from underrepresented groups are also less likely to receive research mentorship. Thus, if you receive mentorship from an underrepresented professor, you might have the opportunity to learn about how to navigate challenges in college and graduate school. You can also learn why they wanted to be a professor and how you can contribute to more equitable representation in and across colleges. Chapter 6 can give you more information about this process.

With the overrepresentation of White male faculty, especially in senior roles (Trower & Chait, 2002), it is important to consider what it means



**ACTIVITY 4.2: WIDENING YOUR RESEARCH PERSPECTIVES  
AND MENTORSHIP OPPORTUNITIES**

1. Find a department or program at your school that is an underrepresented intellectual area, such as Africana Studies, African American Studies, Asian American Studies, Ethnic Studies, Latinx Studies, Sexuality Studies, or Women's and Gender Studies.
2. Read the descriptions of courses offered in that department or program. What could one or more of these course topics add to your current research interests?
3. Find and review the CV of a professor in the department or program. (See Activity 4.1 for questions to help you learn from a professor's CV.)
4. Email the professor and make a plan to visit them in office hours.
5. Prepare questions for your office hours visit to learn more about the professor's work and how their work might align with your interests. See Textbox 4.4.
6. In office hours, make a plan to take a course with the professor, visit their office hours again, and, if possible, get started with them on a research project.

to mentor and be mentored across gender and cultural lines, particularly for underrepresented students. Rockquemore (2016), who studies faculty development and leadership, explains that White male mentors can and should meet the needs of mentees of color. Rockquemore provides a mentoring map that mentors and mentees can use to focus on specific needs related to academic and professional advancement (National Center for Faculty Development and Diversity, 2011). Cross-cultural mentoring brings benefits and challenges. To research student perceptions of mentoring, Dahlvig (2010) interviewed African American female students at a predominantly White institution and found that with White mentors, unlike with African American—especially female—mentors, the students felt they had to “explain everything” (p. 388). At the same time, the students built meaningful relationships with White mentors while they were isolated from their White peers (Dahlvig, 2010). You can find an entire volume of the *Australian Journal of Career Development* (Vol. 38, 2011) dedicated to reviewing research in this area and offering strategies to maximize the benefits of these relationships.

## **CONCLUSION**

As you find and work with research mentors, you will be able to develop a variety of useful skills. The relationship between mentors and mentees aids in the process of thinking, writing, and presenting that is so crucial to academic research. The research experiences you have as an undergraduate can lead to opportunities to write and present your work. In Chapter 5 you will read about how to use your communication skills to share your findings with the world.

## Writing and Presenting Research

One of the most challenging yet most enjoyable parts of the research process is presenting your work to other people. While there is benefit in learning for your own personal and intellectual growth and enrichment, learning everything there is about a new topic or conducting your own exciting research is made even more dynamic by sharing it with someone else. Why keep all that you've learned to yourself? Strong research presentations in the social science (e.g., psychology) and natural science (e.g., biology) disciplines, for example, explicitly present the reason for your research, explain the work that you have done, put this work into the context of the field, and accurately summarize your findings for appropriate audiences, conveying the importance of your work. If you are conducting research in the humanities disciplines, you are going to present the reason for your work and how it fits into the literature, but you are going to focus more on the specific material that you examined in your work (e.g., texts, interviews) and summarize your argument based on this material. For a presentation in the performing arts disciplines (e.g., music, theater), your presentation will likely consist of you reading your writing aloud, performing music or dance, or presenting visual arts such as drawings, photographs, or other media. For the arts in particular, the presentation itself is an integral part of the academic work. As you can see, although the goals of presenting your work are similar in that you are telling or showing your audience what you have spent your time doing, each general area of study has different presentation formats, and they will overlap. You should have your research mentor help you identify what seems most fitting in the way of presenting within your area and for a particular audience. You might have the most important, creative research study in the world, but if your presentation is not accessible to your particular audience, the impact and quality of your work may go unnoticed. This chapter will discuss the importance of presenting research as part of the research process.

In this chapter we'll emphasize comprehensive writing when completing a literature review and reporting research findings both in classes and in research experiences. Writing is an art and a skill, and most academics