

MCB UNDERGRADUATE RESEARCH



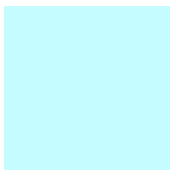
FINDING AN MCB 290 RESEARCH OPPORTUNITY



GETTING STARTED:

WHAT CAN RESEARCH OFFER ME?

PRACTICAL CONSIDERATIONS



STEPS TO FINDING A RESEARCH POSITION:

MEETING PROFESSORS ACROSS CAMPUS IN YOUR AREAS OF INTEREST

CHOOSING A LAB

MAKING THE MOST OF YOUR RESEARCH EXPERIENCE

FREQUENTLY ASKED QUESTIONS

CONTACTS

GETTING STARTED:

WHAT CAN RESEARCH OFFER ME?

Irrespective of your career goals, your training in the biological sciences stands to benefit substantially from research at the University of Illinois.

- Learn where scientific “facts” originate
- Develop hands on skills with current tools and technologies
- Enhance science-base verbal and written skills
- Build critical thinking and data analysis abilities
- Explore and refine career directions
- Develop professional ties for future opportunities

PRACTICAL CONSIDERATIONS

At the beginning of your search for a lab ask:

- Can I plan for **at least two semesters** of research? For most students, a laboratory research endeavor is a new, unfamiliar experience. As such, it takes time to integrate into the working environment and relationships, adapt to the structure and culture of a lab and begin to understand the goals/ objectives of a given lab. It's not unusual for this period of adjustment to absorb the first semester in research – perhaps more. Many research professors know that in order for you to reap the benefits of your research effort, a minimum of two semesters is necessary. Of course, most would encourage you to consider developing your research skills for as long as you are able.
- Do I have **at least 10 hours/week in 3 or 4 hour time periods to work in the lab?** Am I willing to be flexible? Your progress in research requires a minimum commitment of time that will ensure that you go deeply enough into questions to engage with them in a satisfying way. Most research professors will recommend at least 10 hours per week. Because most research involves planning, procedures and coordination with others, you should plan to structure your week such that it allows for lab time in portions of 3 or more hours.
- Do I have **enough time to handle both academics and research?** Once you begin a research position, you will be expected to be as dedicated to your lab studies as much as your coursework and other activities. This will required that you:
 - Develop a time management strategy that allows you to complete the requirements of both in a sustainable way
 - Keep open lines of communication with your mentor. Don't hesitate to anticipate demanding times in your classes and request a shifting of research hours during peak study times.
- Can I be as **committed to my research** effort as my coursework?
- **Do I qualify for MCB 290?** The MCB 290 has no course requirements or stipulations with respect to your year in school. The recommended overall GPA is 3.0. For complete instructions regarding the MCB 290 Independent Study credits, see the “MCB 290 Independent Study” handout.

STEPS TO FINDING A RESEARCH POSITION:

Ask yourself: “If I were a research scientist, what would I look for in a student?”

Overall, many MCB professors describe the successful student researcher as someone who is...

- keen to ask -- or *learn* how to ask -- questions in a research setting.
- eager to learn how to communicate their science with others in discussions and through writing.
- motivated to dig into research seriously enough to see if it is something s/he wants to continue doing!

Note that these qualities have more to do with attitude rather than specific skills, content knowledge or GPA!

MEETING PROFESSORS ACROSS CAMPUS IN YOUR AREAS OF INTEREST

The professors are accustomed to being approached by students interested in joining their lab! Don't hesitate to speak with an instructor in one of your courses, one with whom a friend may be working or who attends research seminars you're interested in. In addition you should:

1. **Make a list of your areas of scientific interest (if any).** If you're a Biological Sciences or MCB student you might wish to begin your search with research labs in MCB. Go to the **MCB Faculty Research Interest** web page (http://www.mcb.uiuc.edu/faculty/by_research) or simply go through the **MCB Directory** (<http://mcb.illinois.edu/people>) where names of research professors are linked to their individual websites.
2. Take the links to individual **MCB faculty websites** (or see separate handout for suggested colleges, schools and departments outside of MCB too) and read:
 - a. Descriptions of a professor's research and, perhaps,
 - b. Recently published abstracts/ papers for those of interest.
3. **Make a list of the faculty** whose research programs interest you, then:
4. **Get in touch with the research professors...**For example, to each professor on your list, email a separate letter of inquiry that contains: *
 - a. Your profile information: semester(s) requested, previous lab experience, etc.
 - b. Description of your goals
 - c. Justification for your interest in research

*** Note: Using the MCB 290 Profile Database when contacting MCB professors is recommended! See the "MCB 290 Student Profile Database" handout.**
5. **Send follow-up emails:** To express thanks, to set up an "interview" appointment with a professor or to provide additional information if requested. If you don't receive replies from professors you've contacted, get back in touch in a week or so and remind them of your wish to speak with them about your interest in research!
6. Meet with professors to discuss possible research opportunities in their programs.

During any semester, students in the School of MCB frequently find research positions outside of MCB in other colleges and departments across the Illinois campus. Examples include:

College of LAS:

- School of Integrative Biology (Plant Biology, Animal Biology, Entomology): <http://www.life.uiuc.edu/sib/>
- Psychology: <http://s.psych.uiuc.edu/home/index.php>
- Chemistry Department (e.g. Chemical Biology): <http://www.chemistry.uiuc.edu/>

Institutes of Multidisciplinary Research: For example:

- The Beckman Institute: <http://www.beckman.illinois.edu/biointel/index.aspx>
- The Institute for Genomic Biology: <http://www.igb.uiuc.edu/>
- The Center for Biophysics and Computational Biology: <http://www.life.uiuc.edu/biophysics/>

College of Applied Health Sciences: <http://www.kch.uiuc.edu/>

College of Veterinary Medicine: <http://vetmed.illinois.edu/>

College of Engineering: <http://engineering.illinois.edu/>

College of ACES:

- Crop Sciences: <http://www.cropsci.uiuc.edu/index.cfm>
- Animal Sciences: <http://www.ansci.uiuc.edu/>
- Food Science and Human Nutrition: <http://fshn.illinois.edu/>

CHOOSING A LAB

WHEN YOU MEET WITH A PROFESSOR:

1. **Think in advance about what you're hoping for in a research position:** For example: Interested in research that has the potential for independent work? Or studies that might lead to a MCB 492 Senior Thesis and, perhaps, graduating with distinction? Or research that entails certain types of work – e.g. computer-based? Bench work? Some “field” work? Go prepared to talk about your goals and to explore how you can pursue them in the labs you wish to join.
2. **Be sure to understand the nature of the work and expectations for students working in their lab --and your own ability to participate in these ways.** How many hours/week? Will there be an established schedule? With whom will you be working? Are there lines of communication? What is the nature of the work – independent or more observational? Will it involve work with animals that you're comfortable with? Will you be expected to attend/ discuss data at lab meetings or read primary papers? Etc...

TO GET MCB 290 INDEPENDENT STUDY CREDIT FOR YOUR RESEARCH:

For complete information on receiving MCB 290 credit, see the “MCB 290 Independent Study” handout. **To qualify you must:**

- *Find a research professor who agrees to mentor your studies in his/her research program. **
- *Conduct your research in a molecular, cellular, physiol. or biochem. research program **on the UIUC campus.***

1 credit hour = 5 hours/ week in the lab for a 16-week semester and 1 credit hour = 10 hours/ week in the lab for an 8-week summer session. Your faculty mentor assigns a letter grade for each semester you enroll in MCB 290.

** Restrictions may apply based on your major.*

MAKING THE MOST OF YOUR RESEARCH EXPERIENCE

*Conducting undergraduate research at a research institution like the University of Illinois is a singular opportunity to participate in science on the leading edge of discovery. As you begin your studies in an UIUC lab, review your goals and think about ways that you can ensure that they will occur. **If you want to:***

Build stronger skills in analytical thinking and oral + written communication

- Participate in the planning of experiments and analysis of data.
- Read primary literature related to your research. Ask lab members for recommended reading.
- Attend and present your work at lab meetings -- Participate in the lab discussions.
- Attend research seminars. Consider presenting a talk!
 - MCB Undergraduate Research Seminar Series (URSS; FA and SP semesters)
 - Campus-wide Undergraduate Research Symposium (April)
 - LIGASE Open House (April)

In ALL of the above: Ask questions!

Explore post-graduation options

- Talk to grad students, post docs and professors about science careers -- Network!
- Attend MCB and Career Center workshops on graduate degrees and science careers.
- Apply for fellowships, scholarships, and internships -- supplement your research experience with other opportunities to explore your interests and skills.

Finish with a strong letter of recommendation:

- Write your dream recommendation letter, then –
- Ask yourself: “What do I need to do in order for my mentor to say these things about me?” Then –
- Demonstrate your awareness and capacity for these qualities and skills. E.g. your—
 - dedication to science
 - ability to grasp the significance of your work
 - bench skills
 - analytical thinking
 - attention to detail
 - awareness and interest in the work of other lab members
 - teamwork and
 - emerging communication skills

FREQUENTLY ASKED QUESTIONS

FAQ's:

- **When is the best time to begin undergraduate research?** This depends on your goals and ability to handle both a course load and research. Some students begin working in labs as freshmen; others find that they are best prepared after completing one or more of the MCB core classes – i.e. either spring of sophomore year or early junior year. Some professors prefer students who are at a particular place in their undergraduate coursework – If so, they will inform you of this when you contact them. Try to not wait until senior year-- limited time may preclude your option of fully exploring the research experience. For this reason, some professors will not extend research opportunities to seniors. **It's never too early to explore if you're interested and motivated!**
- **Is it possible to enroll for MCB 290 in the summer?** Yes, in fact the typical summer semester offers more hours in the lab and greater schedule flexibility that can translate into more rapid progress in your work and a seamless transition into research for the fall semester. If summer research at UIUC is an option for you, mentioning this to professors with whom you speak may place you at advantage.
- **What if I haven't found a research position by the time I need to register classes?** Go ahead and register for your classes, but reserve time in your M-F daytime schedule for research -- then continue to contact research professors. If necessary, you will be able to add MCB 290 after the new term starts by receiving permission in the MCB Core Curriculum Office in 252 Davenport Hall (See the MCB 290 Independent Study handout).

FAQ's:

- **Is there a limit to the number of hours of MCB 290 credit I can have?** There is no limit to the number of hours of MCB 290 for which you can enroll, however **only 10 hours will apply to your total hours needed (120 hours) for graduation.** Once you accumulate 10 hours of MCB 290 credits, additional hours and assigned grades will continue to be documented on your academic record.
- **Is it possible to be paid AND receive credit for my research?** No, not simultaneously for the same work. For more information, see the **MCB 290 Independent Study** handout.
- **Can I receive MCB 290 credit for my research at another institution?** No, but you are encouraged to take advantage of these unique opportunities. Such experiences may enhance your ability to find a research position at Illinois, make you more competitive for summer research fellowships and provide evidence of a richer, more varied research experience as an undergraduate! Of course, you can document that experience in the future on your resume and potentially receive a letter of recommendation for future educational and career goals.

QUESTIONS?

For help with any aspect of your under graduate research goals:

- Access the **handouts, pod casts and student interviews** linked to the MCB Undergrad. Research webpage: <http://mcb.illinois.edu/undergrad/research.html>.
- Attend **MCB Undergraduate Research workshops** -- get advice from both professors and students already engaged in research! Watch roadMAP for workshop announcements.
- Check out **webGURU**: The Web Guide to Research for Undergraduates: <http://www.webguru.neu.edu>.
- Email questions to the MCB Advisors at: mcb290help@life.uiuc.edu.
- Chat one-on-one with an MCB Advisor: Call the **MCB Advising Office at 333.6774** for appointments.