School of MCB
Undergraduate Research
Information Session

Tina M. Knox,
Assistant Director for Advising and Recruitment
February 2, 2022
Agenda

- Special information for biochemistry students
- What is undergraduate research?
- How to find a lab
- How to enroll in MCB 290/BIOC 290
- Faculty perspective
- Student perspective
- Graduation with Distinction, if time
Biochemistry Majors Only

- BIOC 290, independent laboratory research
- BIOC 492, senior thesis
- Contact Jeff Goldberg for template email to use - not necessary to use student profile.
- Forms signed by Jeff Goldberg, flexible deadlines
- Need 6 hrs of senior research for distinction in biochem
- Email Jeff for additional information, jmgoldbe@illinois.edu, Room 417 RAL

SCHOOL OF
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Instructional Program
What Is Undergraduate Research?

Undergraduate students participate in scientific research, in a university lab, under the direction of a faculty member (P.I.), post-doc or graduate student.

- Earn course credit (MCB 290 or BIOC 290)
  - Earn a grade for their contributions to the lab

- A few paid positions exist
  - Cannot earn money if earning credit
Why Research?

- Experience cutting edge science
- Make connections with faculty
- Develop skills in analytical thinking, communication and teamwork
- Determine if graduate studies may be a viable post-graduate goal
Why Research?

- Gain intensive practical knowledge using modern technology
- Understand how techniques and procedures discussed in lecture and lab are used in the real world
- Practice problem solving
Eligibility for MCB 290/BIOC 290

- Must be a declared major in Biology, MCB, MCB Honors or Biochem
- Conduct research in an approved laboratory at UIUC
- Good academic standing, recommended GPA of 2.75 or higher
- Cannot receive monetary payment, or any other form of academic credit, based on the research for which MCB 290 or BIOC 290 credit is earned.
- Must enroll in the course by the university deadline to add a semester course using the appropriate forms.

http://mcb.illinois.edu/undergrad/opportunities/research/
Typical Workload

• 1 credit MCB 290 = approximately 5 hrs/week in lab/16-weeks (8-week summer sessions, 1 credit = 10 hrs/week)

• Keep in mind this is an average. You need to plan to stay until your work is done.

• Make sure you have a clear understanding of the faculty expectations for credit and how your grade will be assessed.
Expectations

• Show dedication to the project. This should be a priority.
• Read primary research articles
• May need to come in at odd hours, including nights and weekends.
• May be expected to attend lab meetings.
• May be expected to present your data.
• May be expected to write a senior thesis.
Limits?

- A limit of 10 credit hours of MCB 290/BIOC 290 can be applied towards the 120 hours needed for graduation.

- However, you are encouraged to continue your research for as many terms as you wish.

- All MCB 290/BIOC 290 semesters and the assigned letter grades will appear on your transcript and count in your GPA.
How to Find a Lab

1. Review information on SMCB websites, talk with TAs and faculty in your classes
2. Read about faculty and their research interests
3. Make a list of faculty with whom you want to work
4. Create an online student profile (bioc students use Jeff’s email template)
5. Contact faculty via email
   a) Be professional and concise
   b) Follow up, if necessary
How to Find a Lab

1. Review information on MCB websites
   mcb.Illinois.edu/undergrad/opportunities/research/

Opportunities

Undergraduate Research in MCB

Forms  |  Student Profile Database  |  Workshop Video
MCB 290 Undergraduate Research  |  MCB 492 Senior Thesis
Graduation with Distinction  |  Campus Office of Undergraduate Research
School of MCB Summer Undergraduate Research Fellowships

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Instructional Program
How to Find a Lab

2. Read about faculty research interests
   - mcb.Illinois.edu, click on “people”
   - Google UIUC ______ research or _______ faculty

3. Make a list of faculty you want to contact
Sayeepriyadarshini "Sayee" Anakk

Assistant Professor of Molecular and Integrative Physiology

Research Topics
Endocrinology, Metabolic Regulation, Regulation of Gene Expression

Education
Bachelors in Pharmacy, Birla Institute of Technology & Sciences, Pilani, India
MSc, Birla Institute of Technology & Sciences, Pilani, India (Biological Sciences)
Ph.D., University of Texas, Graduate School of Biomedical Sciences at Houston (Biochemistry)
Postdoctoral Fellow, Baylor College of Medicine, Houston

Teaching Interests
MCB 402 - Sys & Integrative Physiology

Faculty Profile

Liver metabolism in normal and diseased state

My laboratory will focus on understanding liver metabolism in normal and diseased state. Our goal is to investigate how bile acids and nuclear receptors maintain metabolic homeostasis, and contribute to liver diseases, including cancer using cell-based systems and genetically engineered mouse models.

Liver is a major organ that regulates metabolism of triglycerides, cholesterol, glucose, amino acids, heme, xenobiotics and many more substances. One of the salient features of the liver is to make bile! Bile acids are amphiphilic detergents synthesized in liver to facilitate absorption of dietary lipids. Bilary homeostasis is critical and defects/dysfunctions in this pathway lead to several liver diseases including liver cancer.

Representative Publications


*S corresponding author
How to Find a Lab

4. Create an online Student Profile

Using the MCB 290 Student Profile Database

If you plan to contact MCB professors during your search for a research position, we recommend that you submit an electronic resume to the MCB 290 Student Profile Database. Your on-line resume may be completed at any time and will remain active in the database for six months. During your search, this allows you to provide uniform information to all MCB professors whose research is of interest to you. Non-MCB faculty will not have access to this database, so you will need to send them your information in a Word document. Questions regarding the MCB 290 Profile Database can be directed to mcb290help@life.illinois.edu.
Student Profile Database

> Select Terms

**MCB 290 Undergraduate Research Student Application**

For detailed information about the application process, please refer to: [http://www.mcb.uiuc.edu/undergrad/research.html](http://www.mcb.uiuc.edu/undergrad/research.html). Please contact mcb290help@life.uiuc.edu with any questions regarding this application.

Term Selection

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**Instructional Program**
Submit Application

MCB 290 Undergraduate Research Student Profile

For detailed information about the lab search process, please refer to:
http://www.mcb.uiuc.edu/undergradresearch.html.

Please contact mcb290help@life.uiuc.edu with any questions regarding completion or use of this profile system. Once submitted, MCB 290 Student Profiles are fact-checked and approved by the MCB Advising Program on a weekly basis. Notification of approval or denial will be received by email. Denials will include instructions for correction and resubmission of the profile. Once approved, your profile will remain active in the database for 6 months.

Completion of the profile is restricted to one hour. It is recommended that you compose your responses for the text boxes in a word processing program, then copy and paste them into the profile.

Campus Experience

Semester in school: 1 (NOT year in school)

Current Major: ...

Majors GPA: (e.g. 3.51); The major GPA is based on all MCB, IB, CHEM, PHYS and MATH courses taken. Do NOT use your overall GPA. If you have declared your MCB or Biochemistry major, you can obtain your major GPA via a DARS audit at http://www.sip.illinois.edu/degreeprogress.html. First semester students without a GPA should enter FRESH, indicating that you are a freshman and do not have a GPA to report.

MCB and Supporting Courses & Grades. List all MCB, IB, CHEM, PHYS, STAT and MATH courses taken. Include In Progress courses as IP. Transfer courses as TR and AP credit or courses you have proficiency credit in as PS.

Research Details

Semester Requesting: Summer 2015

Anticipated duration of research (% of semesters): 

Are you considering a senior thesis (MCB Majors: MCB 492; BIOCHEM majors: BIOC 492) as part of your research experiences? Yes, No, Don't Know

Have you previously conducted laboratory research? Yes, No

Describe undergraduate research or relevant work experience already acquired:
Finding your Major GPA

- Run a Degree Audit for your major
- Scroll down to find “Major GPA Requirement”

MAJOR GPA REQUIREMENT - 
YOUR GRADE POINT AVERAGE FOR ALL COURSES INCLUDED IN YOUR MAJOR GPA TAKEN ON THIS CAMPUS MUST BE 2.0.

52.0  GPA HOURS EARNED  205.00  POINTS  3.94  GPA

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Student Profile Database

• Profile information is checked for accuracy by MCB Advising, typically takes ~1 week for processing.
• Upon approval, you will receive an email with a link to your profile that you can send to MCB faculty.
• Profile is only active for 6 months, then must update
• Only available to MCB/BIOC students
• Only viewable by MCB/BIOC faculty
How to Find a Lab

5. Contact Faculty
   ✓ Send introductory email – preferred method
   ✓ Be professional (use greeting and signature)
   ✓ Be specific to each lab – why are you interested in their research?
   ✓ Be patient and persistent
     • May have to send a follow up email
     • Wait at least 3 days between emails
   ✓ Work in batches, contact 5 or 6 labs at a time
Dear Dr. Anakk,

My name is Tina Knox. I’m a sophomore in MCB and am very interested in undergraduate research as I’m considering graduate school. In looking at your research website, I see that you study liver metabolism. I’ve learned a bit about metabolic pathways in my MCB classes and would love to get a deeper understanding of how they relate to disease in the body. Do you have space for an undergraduate in your lab next fall?

I’ve linked to my student profile here, studentprofilelink. If you need any additional information, let me know. I hope to hear from you soon about opportunities in your lab.

Thanks for your consideration,
Tina Knox
Interview Tips

- Dress nicely (business casual)
- Come prepared to talk generally about lab projects
- Ask about expectations!!!!
  - When/how often are you expected to be in lab?
  - How will your grade be determined?
- Be honest about your availability
  - Academics should come first!
How to Enroll in MCB 290

• Fill out online form before add deadline.  
  https://mcb.illinois.edu/undergrad/opportunities/research/#forms
• Note if this is an official MCB lab or Non-MCB lab
• Note if this is a first request or renewal
• Need netid of PI – not grad student or post-doc
  • For Non-MCB labs, attach 1 page research proposal

MCB 290 request/renewal form
IMPORTANT: See below to determine if your lab is an MCB or Non-MCB lab.

Official List of MCB Faculty as of August 2021
School of MCB Affiliate Faculty List as of August 2021
How to Enroll in MCB 290

- You will receive a notification email confirming the form has been submitted.
- Automatically sent to PI for approval.
- After PI approves, automatically sent to MCB for approval.
- Once approved, you will receive email from MCB290@mcb.illinois.edu with the CRN to register.
- You must register for the class on your own before the deadline! Will default to one credit hour.
MCB 290 Deadlines

- 10\textsuperscript{th} day of fall/spring semester at 5:00 PM
- 7\textsuperscript{th} day of summer session II at 5:00 PM
- Must renew every semester by the deadline using online form.
## Non-MCB Labs to Consider

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<thead>
<tr>
<th>Integrative Biology</th>
<th>Chemistry</th>
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<tr>
<td>Psychology</td>
<td>Kinesiology</td>
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<td>Neuroscience program</td>
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<td>Bioengineering</td>
<td>Veterinary Medicine</td>
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<td>Physics</td>
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<td>Comparative Biosciences</td>
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<td>Crop Sciences</td>
<td>Animal Sciences</td>
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<tr>
<td>Beckman Institute</td>
<td>Institute for Genomic Biology (IGB)</td>
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Safety

Before beginning research, your PI should ask you to complete safety training specific to your lab.

- Wear appropriate Personal Protective Equipment (PPE) or other protective equipment as required by your lab or other research setting.
- Take online lab safety training through the Division of Research Safety. [https://www.drs.illinois.edu/](https://www.drs.illinois.edu/).
- COVID-19 Safety Training
Know Your Rights

• “It is the policy of the University not to engage in discrimination or harassment against any person....”

• If you feel your rights have been violated, please consult the Office of the Dean of Students or reach out to your Academic Advisor for help finding resources.
Faculty Perspective

Dr. Sayee Anakk
Associate Professor of Molecular and Integrative Physiology

Research Interests

- Endocrinology
- Metabolic Regulation
- Regulation of Gene Expression
- Liver Metabolism in Normal and Diseased State
Student Perspectives

<table>
<thead>
<tr>
<th>Faisal Zaidi</th>
<th>Will Reiser</th>
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<tbody>
<tr>
<td><a href="mailto:faisalz2@Illinois.edu">faisalz2@Illinois.edu</a></td>
<td><a href="mailto:wkr2@Illinois.edu">wkr2@Illinois.edu</a></td>
</tr>
<tr>
<td>Junior, MCB</td>
<td>Junior, MCB Honors</td>
</tr>
<tr>
<td>Dr. Steven Blanke, Microbiology</td>
<td>Dr. Chris Brooke, Microbiology</td>
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<tr>
<td>3rd semester + summer fellowship</td>
<td>4th semester + summer fellowship</td>
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Instructional Program
# Student Perspectives

<table>
<thead>
<tr>
<th>Arman Sandhu</th>
<th>Laura Kilikevicius</th>
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<tr>
<td><a href="mailto:asandh5@Illinois.edu">asandh5@Illinois.edu</a></td>
<td><a href="mailto:laurak4@Illinois.edu">laurak4@Illinois.edu</a></td>
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<tr>
<td>Junior, MCB</td>
<td>Senior, MCB</td>
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<tr>
<td></td>
<td>Dr. Laura Rice, Kinesiology (KIN 385)</td>
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<tr>
<td></td>
<td>Dr. Pamela Martinez, Microbiology</td>
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<tr>
<td></td>
<td>Dr. Ken Paige, Evolution, Ecology, Behavior</td>
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<tr>
<td></td>
<td>Dr. Gene Robinson, IGB, Entomology (CDB affiliate)</td>
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<tr>
<td>2nd semester in KIN, 1 semester microbio, 2 semester EEB</td>
<td>3rd semester + summer</td>
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Graduation with Distinction

Eligibility for MCB 492 and/or distinction:
• Spend a minimum of 2 semesters in the same lab before final semester
• Earn a minimum of 2 credit hours MCB 290 each semester in that same lab
• Have support of faculty – they will have to write a letter of support
• Give oral presentation within the academic year prior to graduation
• For high/highest distinction consideration, register for MCB 492 in final semester of degree program and write a senior thesis
• For distinction consideration, register for MCB 290 in final semester of degree program

http://mcb.illinois.edu/undergrad/opportunities/distinction/
Take Home Points

- Earn course credit and a grade for research experience
- Start early – Be aware of deadlines
- Understand faculty expectations
- Be professional and responsible
- Have fun and learn as much as you can
Questions

Tina Knox
tmknox@illinois.edu
mcb.illinois.edu/undergrad/opportunities/research/