

School of MCB Undergraduate Research Information Session



Tina M. Knox,
Assistant Director for Advising and Recruitment
September 7, 2022

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





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

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



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
MOLECULAR &
CELLULAR BIOLOGY

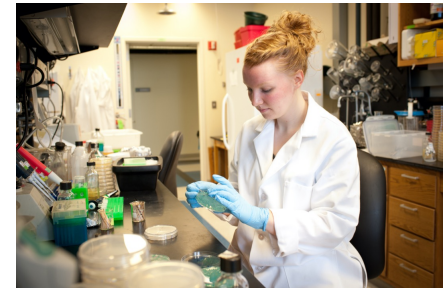
Instructional
Program





What Is Undergraduate Research?

- A mentored investigation conducted by undergraduates that seeks to make a scholarly contribution to knowledge.
- Original work performed under the direction of a UIUC 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
- Some paid positions exist (Campus Job Board)
 - Cannot earn money if earning credit



SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





Why Research?

- Enrich your educational experience
- Make connections with faculty
- Develop skills in analytical thinking, communication and teamwork
- Determine if graduate studies may be a viable post-graduate goal

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





Why Research?

- Gain intensive practical knowledge using modern technology
- Explore issues and methods in your field of interest
- Build confidence
- Practice problem solving

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



Eligibility for MCB 290/BIOC 290

- Must be a *declared* major in Biology, MCB, MCB Honors, Neuroscience, or Biochemistry
- 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/>

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



Typical Workload

- 1 credit MCB/BIOC 290 = approximately 5 hrs/week in lab/over a 16-week term (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. Each lab will have own policies.
- Make sure you have a clear understanding of the faculty expectations for credit and *how your grade will be assessed*.

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



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.

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



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. Determine when you want to start and how long you can commit; then plan your course/work schedule accordingly.
2. Review information on SMCB websites, talk with TAs and faculty in your classes
3. Read about faculty and their research interests
4. Make a list of faculty with whom you want to work
5. Create an online student profile (bioc students use Jeff's email template)
6. Contact faculty via email: Be professional and concise; follow up, if necessary

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





How to Find a Lab

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](#)

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



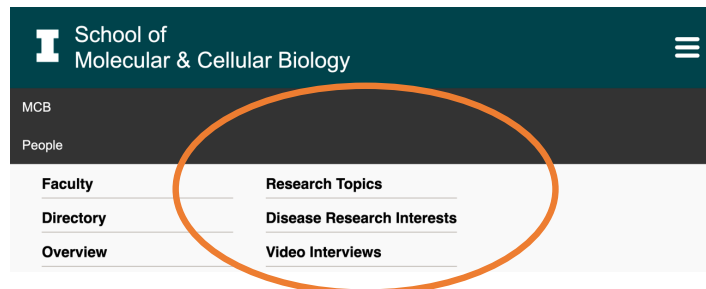


How to Find a Lab

Read about faculty research interests

- mcb.illinois.edu, click on “people”
- Google UIUC _____ research or _____ faculty

Make a list of faculty you want to contact



SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



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

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. Biliary homeostasis is critical and defects/dysfunctions in this pathway lead to several liver diseases including liver cancer.



anakk@illinois.edu

453 Medical School Building
Office: (217) 300-7905
Fax: (217) 244-5858

Lab Page

Faculty Profile

Representative Publications

1. Akinrotimi O, Riessen R, VanDuyn P, Park JE, Lee YK, Wong LJ, Zavacki AM, Schoonjans K, **Anakk S**. (2017) *Shp* deletion prevents hepatic steatosis and when combined with *Fxr* loss protects against type 2 diabetes. *Hepatology*. doi: 10.1002/hep.29305.
2. Kim KH, Choi S, Zhou Y, Kim EY, Lee JM, Saha PK, Anakk S, Moore DD. (2017) Hepatic FXR/SHP axis modulates systemic glucose and fatty acid homeostasis in aged mice. *Hepatology*. doi: 10.1002/hep.29199.
3. Desai MS, Mathur B, Eblimit Z, Vasquez H, Taegtmeier H, Karpen SJ, Penny DJ, Moore DD, **Anakk S**. (2017) Bile acid excess induces cardiomyopathy and metabolic dysfunctions in the heart. *Hepatology*. 65(1):189-201. doi: 10.1002/hep.28890
4. Bhat A, Parker DJ, Bebee TW, Ahn J, Arif W, Rashan EH, Chorghade S, Chau A, Lee JH, **Anakk S**, Carstens RP, Xiao X, Kalsotra A. (2015) ESRP2 controls an adult splicing programme in hepatocytes to support postnatal liver maturation. *Nature Commun*. 6:8768. doi: 10.1038/ncomms9768.
5. Chow EC, Magomedova L, Quach HP, Patel RH, Durk MR, Fan J, Maeng HJ, Irondi K, **Anakk S**, Moore DD, Cummins CL, Pang KS. (2014) Vitamin D Receptor Activation Down-regulates Small Heterodimer Partner and Increases CYP7A1 to Lower Cholesterol. *Gastroenterology* 146(4):1048-59. doi: 10.1053/j.gastro.2013.12.027.
6. Kerr TA, Matsumoto Y, Matsumoto H, Xie Y, Hirschberger LL, Stipanuk MH, **Anakk S**, Moore DD, Watanabe M, Kennedy S, Davidson NO. (2014) Cysteine sulfinic acid decarboxylase regulation: A role for farnesoid X receptor and small heterodimer partner in murine hepatic taurine metabolism. *Hepatology Research* 44(10):E218-28. doi: 10.1111/hepr.12230. Epub 2013 Oct 18.
7. **Anakk S***, Bhosale M, Schmidt VA, Johnson RL, Finegold MJ, Moore DD*. (2013) Bile Acids Activate YAP to Promote Liver Carcinogenesis. *Cell Reports* 5(4):1060-9. *corresponding author

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





How to Find a Lab

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.

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



Student Profile Database

http://www.mcb.uiuc.edu/undergrad/research.html. Please contact [mcb290help@life.uiuc.edu](\"mailto:mcb290help@life.uiuc.edu\") with any questions regarding this application.' At the bottom, there is a 'Term Selection' button with a small calendar icon." data-bbox="248 269 763 657"/>


research

The MCB 290 Research Profile allows undergraduate students to apply for laboratory research experiences.

> 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>. Please contact mcb290help@life.uiuc.edu with any questions regarding this application.

 Term Selection

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

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/undergrad/research.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/ paste them into the profile.

Personal Information

First Name / Given name:

Last Name / Surname:

Gender: ☐ M ☐ F

Net ID: bahunge2

University ID Number (UIN):

Local Address:

Local Phone Number: (ext. 555-5555)

Campus Experience

Semester in school: 1 (NOT year in school)

Current Major: (Note: only biochemistry, biology and MCB students are eligible to use this profile system)

Major GPA: (ex. 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.oar.uiuc.edu/dars/generate.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.

Course: Grade:

No courses added.
To add a course, fill in the information above and click "Add Course"

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 experience? ☐ Yes ☐ No ☐ Don't Know

Have you previously conducted laboratory research? ☐ Yes ☐ No

Describe undergraduate research or relevant work experience already acquired:

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



Finding your Major GPA

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



Degree Audit

A degree audit is an unofficial audit of progress toward the degree that reflects courses completed and currently in progress.

Generate an Audit

University of Illinois students can view their degree audit through the [Degree Audit System](#). This report is an unofficial audit of your degree progress which includes in progress coursework. Watch for additional information and advisories specific to your college at the top of your degree audit. Read the following instructions before generating an audit.

Logging In

Use your NetID and Password to log in to the system. These are the same values that are used to log in to Student Self-Service.

Academic Records

FERPA
Changing Your Personal Information
Preferred First Name
Enrollment or Degree Verification
[Degree Audit](#)
Transfer Credit
Transcripts
Diplomas
Apostilles
Academic Records FAQ



**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

**SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY**

**Instructional
Program**



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*

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





How to Find a Lab

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 5 days between emails
- ✓ Work in batches, contact 5 or 6 labs at a time

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





How to Find a Lab

Template for Introductory email

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 the future. 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 spring?

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

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





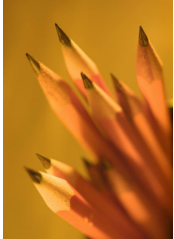
Interview Tips

- Casual dress, but professional
- Come prepared to talk generally about lab projects and why you are interested
- 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?
- Send a brief thank you email

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





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.

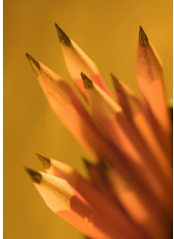
[Official List of MCB Faculty as of August 2021](#)

[School of MCB Affiliate Faculty List as of August 2021](#)

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





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.

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





MCB 290 Deadlines

- 10th day of fall/spring semester at 5:00 PM
- 7th day of summer session II at 5:00 PM
- Must renew every semester by the deadline using online form.

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



Non-MCB Labs to Consider

Integrative Biology	Chemistry
Psychology Neuroscience program	Kinesiology
Bioengineering Physics	Veterinary Medicine Pathobiology Comparative Biosciences
Crop Sciences	Animal Sciences
Beckman Institute	Institute for Genomic Biology (IGB)

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



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/>.

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



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.

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



Faculty Perspective

Dr. William Brieher

Professor of Cell and Developmental Biology

Research Interests

- Cell organization
- Actin Cytoskeleton
- Understanding cell shape, motility, and morphology
- Molecular basis of inherited kidney disease

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



Student Perspectives

Faisal Zaidi, Senior
4th semester + SURF, microbiology
faisalz2@Illinois.edu

Will Reiser, Senior
5th semester + SURF, microbiology
wkr2@Illinois.edu

Maya Raviv, junior
3rd semester, cell biology
mraviv2@Illinois.edu

Eddie Andrews, junior
3rd semester, microbiology
edwarda3@Illinois.edu

Zainab (Zee) Umardeen, senior
1st semester, comparative biosciences
zumard2@Illinois.edu

Joey O'Brien, junior
2nd semester, Entomology/plant pathology
jto4@Illinois.edu

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program



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/>

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





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

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program





Questions

Tina Knox

tmknox@Illinois.edu

mcb.Illinois.edu/undergrad/opportunities/research/

SCHOOL OF
MOLECULAR &
CELLULAR BIOLOGY

Instructional
Program

