Undergraduate Research Seminar

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Tina Knox, Coord. MCB Advising

Drs. Steve Blanke and Kai Zhang
Dil Patel, Macey Coppinger & Agilda Dema
Jeff Goldberg

- Specific Instructions for Biochem students interested in research.
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
• Get to know faculty
• Hone skills in *analytical thinking* and *communication*
• Determine whether graduate studies may be a viable postgraduate goal
• Gain intensive practical knowledge using state-of-the-art technology
• Gain an understanding of how the techniques and procedures discussed in lecture and lab are used in the real world
• Practice problem solving
Eligibility for MCB 290/BIOC 290

- Declared major in Biology, MCB, MCB Honors or BIOC
- Research in an approved laboratory at UIUC
- Good academic standing, recommended GPA of 3.0 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 form above.

[http://mcb.illinois.edu/undergrad/opportunities/research/](http://mcb.illinois.edu/undergrad/opportunities/research/)
Typical Workload

• 1 credit hour of MCB 290 = 5 hours/week in lab (8 week summer sessions 1 hour = 10 hours/week)

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

- A limit of 10 credit hours of MCB 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 their assigned letter grades will appear on your academic record and count in the calculation of your GPA.
How to Find a Lab

1. Review information on websites
2. Research faculty
3. Make a list of faculty you would like to work with
4. Create an online Student Profile
5. Contact faculty via email
How to Find a Lab

1. Review information on MCB web sites
   mcb.illinois.edu/undergrad/opportunities/research/

Forms

Fall and Spring Semester Forms
- MCB 290 Request Form for Research Experience in MCB Labs (PDF)
- MCB 290 Request Form for Senior Thesis in MCB or Non-MCB Labs (PDF)
- MCB 390 Request Form for Senior Thesis in MCB or Non-MCB Labs (PDF)
- MCB 290 Research Forms - instructions below.
- MCB 290 Research Form for Undergraduate Students
- MCB 290 Research Form for Graduate Students
- MCB 290 Research Form for Faculty
- MCB 290 Research Form for PostDocs

Summer Semester Forms
- MCB 290 Summer Request Form for Research Experience in MCB Labs (PDF)
- MCB 290 Summer Request Form for Senior Thesis in MCB or Non-MCB Labs (PDF)

Undergraduate Research Workshop Handouts (PDF)
- Search for MCB Undergraduate Research
- MCB 290 Independent Research Credit: Criteria and How to Obtain
- A Guide to the MCB 290 Student Profile Database
- Guidelines for Senior Thesis Format
- Sample Theses by past students

Undergraduate Perspectives on Research

Video interviews with previous Undergraduate Researchers:
- Anna Kelner, 2009 Biochem grad
- Kevin McNerney, 2011 MCB honors grad
- Joy Lee, 2010 MCB honors grad

Undergraduate Lab Experience:

Articles by Alex Crofts (SP09 MCB graduate)
- Part I: First Courses Introduce Advanced Techniques
- Part II: Undergraduate Experience in Faculty Labs

How to Find, Join, and Succeed in a Faculty Laboratory

Notes:
- All forms must be processed in room 228 Davenport Hall. The deadline to add MCB 290 and MCB 492 in the 10th day of class during fall and spring and 7th day of class during summer. Students may not be added to these courses after this deadline.
How to Find a Lab

2. Research our Faculty
3. Make a list of who you want to work with

http://mcb.illinois.edu/people
Research Interests
Video Interviews
James M Slauch

PROFESSOR OF MICROBIOLOGY
DIRECTOR, MEDICAL SCHOLARS PROGRAM

Research Topics
Genetics, Host-Pathogen Interactions, Regulation of Gene Expression

Education
B.S. (Biochemistry), The Pennsylvania State University, 1984
Ph.D. (Molecular Biology), Princeton University, 1990
Postdoc. (Microbiology), Harvard Medical School, 1990-1993

Molecular mechanisms of Salmonella pathogenesis
Salmonella cause 1.4 million cases of gastroenteritis and enteric fever per year in the US and lead all other foodborne bacterial pathogens as a cause of death. The long-term objectives of our research are to understand the molecular mechanisms by which Salmonella circumvents the host immune system to cause disease. Salmonella typhimurium

Representative Publications

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](mailto:mcb290help@life.illinois.edu). 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.
MCB

Student Profile

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
MCB 290 Undergraduate Research Student Profile

Submit Application

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 or resubmission of the profile. Once approved, your profile will remain active in our database for 6 months.

Completion of the profile is restricted to one hour. It is recommended that you respond to the text boxes in a word processing program, then type your responses into the profile.

Personal Information

First Name / Given name: 
Last Name / Surname: 
Gender: [ ] M [ ] F
Net ID: bahughe2
University ID Number (UN): 
Local Address: 

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

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:
How to Find a Lab

• Profile information checked for accuracy by MCB Advising
• You will receive an email once your profile has been approved, *includes a link* that you can send to faculty
• Profile is only active for 6 months
• Only available to MCB/BIOC students
• Only viewable by MCB/BIOC Faculty
How to Find a Lab

5. Contact Faculty
   – Send introductory email
   – Be professional
   – Be specific to the lab!
   – Be persistent, may have to send more than one email – continue to be professional – wait at least 3 days between emails.
   – Work in Batches, contact up to 5 labs at a time
How to Find a Lab

• Interview
  – Dress nicely (business casual)
  – Come prepared (know about lab projects)
  – Ask about expectations!!!
    • What will my grade be based on?
  – Be honest about your availability
    • Academics should come first!

Academics should come first!
How to Enroll

• For MCB 290 credit you need to:
  – Fill out appropriate form (MCB or Non)
  – Get it signed by P.I.
  – Bring to 252 Davenport for Processing
  – Pay attention to deadlines!
How to Enroll

• Deadlines
  – 10th day of regular semester, 5 PM
  – 7th day of summer session II, 5 PM

• Renewing for additional semester
  – Must renew every semester by deadline
  – Online renewal form available
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Non-MCB Labs

• Sign up under Melissa Michael’s section of MCB 290
• Strict deadlines!
Faculty Perspective

• Dr. Kai Zang, Biochemistry Professor
  • studies how signal transduction regulates cell fate determination and how normal signaling processes are compromised in disease conditions.

• Dr. Steve Blanke, Microbiology Professor
  – ultimate goal is to develop new countermeasures against pathogenic organisms.
Student Perspective

- Dil Patel, Jr, MCB, Dr. Zhang’s lab, 4 semesters
- Macey Coppinger, Sr, MCB Honors, Dr. Llano’s lab, 4 semesters
- Agilda Dema, Jr, MCB, Dr. Kramer’s lab (non-MCB), 3 semesters
Graduation with Distinction

• Eligible if:
  – Spend at least 2 semesters in same lab, earning 2 credit hours or more.
  – Have support of P.I.
  – Are in last semester of degree program
  – Different levels and requirements

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

• Earn course credit and grade for research experience
• Start early – Beware of deadlines
• Be aware of faculty expectations
• Treat this as a job, be professional and responsible
• Have fun and learn lots