Beyond The Diploma: Careers in MCB

MCB Advising Program (MAP): Tina Knox
AND

Biotechnology Career Services: Kathleen Brinkmann

October 17, 2007
124 Burrill Hall
5:00 - 6:00 pm
MCB Majors at UIUC receive a solid foundation in numerous disciplines within the field of biology…

- Human Physiology
- Molecular Genetics
- Cell and Develop. Biology
- Biochemistry
- Microbiology
- Immunology
- Structural Biology
- Biotechnology
- Bioinformatics
- Genomics
- Computational Biology
- Proteomics
M.D. Not For Me, Now What?

While the MCB curriculum is designed to provide an outstanding preparation for training in medicine and the other health sciences.

Our curriculum also prepares students for many other opportunities for employment and for further training.
Examples of Non-Health Careers for MCB Graduates:

- Forensics -- Crime scene investigation; DNA analysis; forensic genetics and serology.
- Biotechnology and Pharmaceuticals -- Design and development of new drugs; diagnostics and quality control; sales and customer support; regulatory compliance.
- Agricultural Biotechnology and Food Processing -- Product research and development; quality control
- Bioinformatics and Computational Biology -- Modeling of evolution; genome and proteome analysis and prediction; cancer biology.
- Law -- Intellectual property issues; patent law.
- Government Agencies and Academic Institutions
Potential employers in our region and beyond:

- Abbot (North Chicago)
- Lilly (Indianapolis)
- Monsanto (St. Louis)
- ADM (Decatur)
- Conair (Rantoul)
- Universities
- Food and Drug Administration
- Environmental Protection Agency

Find More Info on Careers and Employers at:
http://www.mcb.uiuc.edu/academics/undergrad/careers.html
Exploration

- What are your interests?
- What skills do (will) you have?
- What type of setting do you want to work in?
The Career Center

715 S. Wright St., Champaign, IL, 61820
Hours: 8:30-5:00 M-F
Phone: (217) 333-0820

The Career Center serves all students of The University of Illinois at Urbana-Champaign regarding professional and career development.

Through collaborative and innovative programs, services, and resources, the staff seeks to educate and empower students to actively plan their futures as contributing members of a global community.
The Career Center Quick Links:

- Figuring Out Your Interests -- http://www.careercenter.uiuc.edu/findingpath/interests.asp
- Linking Majors to Careers -- http://www.careercenter.uiuc.edu/findingpath/majorstocareers.asp
- Career Information System (CIS) -- http://www.careercenter.uiuc.edu/rc/databases/cis.asp
- Vault Database -- http://www.careercenter.uiuc.edu/rc/databases/vault.asp
- Iconnect -- http://www.careercenter.uiuc.edu/rc/databases/iconnect.asp
- Internships -- http://www.careercenter.uiuc.edu/internship/default.asp
- Resumes -- http://www.careercenter.uiuc.edu/resumes/coverletters.asp
- Interviewing Tips -- http://www.careercenter.uiuc.edu/guides/interviewing.asp
Resume Writing Workshop

- Thursday, October 25
- 4 to 5 PM
- 425 NHB (MCB Learning Center)
- Presented by the Career Center
Careers in Molecular Biology

Abigail Salyers, Ph.D.
Professor of Microbiology
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Careers in Molecular Biology (Human health)

• Clinical trials, delivery of technology
  – Professional degrees (M.D., D.V.M., etc.)
  – R.N., M.S., M.P.H., M.E.

• Medical research – discovering the new paradigms, finding new treatments
  Degrees (advanced)
    Ph.D., M.D., D.V.M., D.D.S.
  Degrees (less advanced)
    M.S., M.A., M.P.H., M.E., B.S., B.A.
Careers in Molecular Biology (Non-medical)

• Environmental/Agricultural microbiology
  – Areas
    • Mining microbial diversity/industrial microbiology
    • Bioremediation
    • Astrobiology
    • Agricultural microbiology

Degrees
  Usually Ph.D., M.S., B.S.

Employers
  Small biotech companies
  Large biotech companies, food companies (e.g., ADM)
Careers in Molecular Biology

- Teaching/developing teaching materials
- Science journalists
- Regulatory positions (F.D.A., U.S.D.A., etc.)
- Advisory positions (Congress, granting agencies, lobbyists, etc.)
- Scientific societies (Natl. Acad. Sci., FASEB, Amer. Soc. for Microbiol., etc.)
What is a Ph.D.? An M.S.?

- **M.S., M.P.H.**
  - Usually a 2 year program
  - May be a stipend and tuition waiver
  - Research master’s is the only worthwhile type of degree

- **Ph.D.**
  - Usually a 5-6 year program
  - Automatically receive M.S. on way to Ph.D.

**Postdoctoral training**
- Required for most university, industry positions for Ph.D. holders
- Supposed to be 2-3 year position
- Provides further experience in research – more supervisory role, learn different areas of expertise
- Salaries range from $25,000 – $45,000 per year
The graduate school experience

• Apply for the Ph.D. program, even if you think you want a Master’s.

• No need to know what you want to do – actually better if you have an open mind

• School will pay for you to visit and take a look

• Stipend (> $20,000/year) plus tuition waiver
The graduate school experience

• First year
  – Orientation – introduction to faculty
  – Rotation through several laboratories
  – Choose a laboratory, project
  – Courses, but mostly laboratory work

• Second year
  – Oral, written examination(s)
  – Begin research project in earnest

• Rest of time (usually 2-4 years)
  – Research
  – Oral presentations, publications
How to choose a graduate program

• Terminal Master’s
  – Reputation of school
  – Outcome for graduates

• Ph.D
  – Large state universities may be best
  – Stay away from the coasts
  – Publication rate
  – External grant support (NIH, NSF, USDA, DOE etc.)
Questions?
Introduction

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Roy J. Carver
Biotechnology Center
Career Services
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Top Skills & Qualities of the Perfect Job Candidate

- Communication Skills (written and verbal)
- Computer/Technical
- Leadership
- Teamwork skills
- Interpersonal Skills
- Motivation/Initiative
- Strong Work Ethic
- Flexibility/adaptability
- Problem-solving/common sense

Source: Dr. Gardener, Recruiting Trends, 2006-2007
Gain Meaningful Experiences

- Internships
- Lab experience
- Student organizations
Ways to gain experience

• Internships
  • Short-term work experience.
  • Paid or unpaid.
  • Great opportunity to “test-drive” a job.
  • Generally structured with a plan and goals.

• Job Shadowing
  • Extended informational interview, ranging from a few hours to several days.
  • Learn what a “typical day” is like.
Internship Netsites

- [http://www.cofc.edu/~career/internshipwebsites.html](http://www.cofc.edu/~career/internshipwebsites.html)
- [http://usinterns.com/](http://usinterns.com/)
Science Jobs

- Lab tech
- Product scientist
- Bioinformatics
- Science Photographer
- Technical Support
- Health Counselor
- Formulation Scientist
- Training Specialist
- Compliance
- Regulatory Affairs
- Government Research
- Drug Testing Lab
- Technology Transfer
- Science writer
- Quality control
- Project manager
- Health care
- Clinical trials
- Public relations
- Scientific translator
- Patent law
- Sales
- Forensics
- Museum Display
Websites

- http://www.biologyjobs.com/
- http://www.nasw.org/ for science writers
- http://www.sciencejobs.com
- http://www.nas.edu National Academy of Sciences
- http://www.biofind.com
Alumni Talks

• Gregory Kienast, B.S. (MCB)
  – Coordinator of Chemical Tracking and Stores (School of Chem Sciences)
  – Past Associate Technical Services Scientist (Sigma-Aldrich)

• Janie Frye, B.S. (CSB), M.S. (Biology)
  – Monoclonal Antibody Designer (Kim Laboratories, Research Park)