GRSC 8010
Graduate Professional Development

The important stuff that most of you haven’t thought about.

** LECTURE I **

Theme: **Personal Responsibility**

- Awareness of program requirements
- Role in scientific enterprise
- Support mechanisms
- Expectations & Responsibilities

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** Important Info I  **
(our responsibility)

- **Access to Buildings and Labs**
- **Guidance**
- **Curriculum and Framework**
- **Guidance**

** Important Info II  **
(your responsibility)

- **Forms**
  - Submit in a timely fashion; turn in your Update Form and signed Rotation forms
- **Mail**
  - Incoming: see ILS Student slot in mail room
  - Outgoing: most departmental offices (must have postage!)
- **Email**
  - Link your Gmail, Yahoo, etc. accounts to your UGA.EDU accounts!!
  - List-serves: find information for list-servs on program websites
- **Computer-related** (start here: http://eits.uga.edu)
  - MS Office (thru UGA Mail portal)
  - VPN client (CISCO) for tunneling into campus networks
  - www.srs.usg.edu (for personal purchases)
  - Endnote (thru Library) and Chemdraw (thru Chemistry)

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** Important Info III  **
(also your responsibility)

Year 1
- Find a Thesis Lab
- Take Courses

Courses:
- Maintain GPA ≥ 3.0
- Your GPA is meaningless post-PhD
- The information you learn is **not** meaningless

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** Important Info IV  **
(you guessed it, also your responsibility)

Be Aware of Your Milestones and Timeline
Each program has its own specific curriculum and expected timeline
**Why Go Through this Training Process?**

the end product is a marketable skill

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**Overview of Responsibilities**

**Student (you)**
1. Identify a research mentor/advisor by end of 1st semester.
2. Engage in research activities.
3. Organize thesis committee by end of 1st year (e.g. Summer before G2).
4. Schedule required meetings and presentations in a timely fashion.
5. Document that degree requirements are being satisfied. Submit appropriate paperwork!

**Thesis Mentor (your guide)**
1. Provide guidance: consistent and timely intellectual advice
2. Provide support: stable financial / working environment (not necessarily emotional)

**Thesis Committee (your evaluators)**
1. Annual evaluations of student’s progress toward degree objective(s).
2. Administer and evaluate the student examinations (written and oral).
3. Sign off on graduate student forms after each milestone event.

ALWAYS: Contact your Grad Coordinator when unforeseen circumstances interfere with timely progress toward your degree requirements.

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**Administrative Structure**

How we are (i.e. researchers) viewed by the system

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**UGA is Investing You**

Training and Dollars

- **Stipend:** $28,000 (per person per year)
- **Supplies:** $5,000 (per person per year)
- **5-year cost:** $165,000 (per person) $9,900,000 (per cohort)

- Your success is important to many people
- Like any business investment, there is an expectation of a ‘return’

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**Treat Yourself Like a Small Start-Up**

UGA is your “Angel Investor”

**Business Perspective**
- A quality or unique product
- Adequate capital
- Proper timing
- People resources
- Effective management

**Graduate School Perspective**
- Publications (quality and quantity both matter)
- Grants that are driven by publications
- “Publish or perish” – publish sooner rather than later
- Smart and enthusiastic lab mates / peers
- You are your project's manager!!
Universities have your best interests in mind?
Think again!


- 4,000 graduate students
- 27 universities

"Most students viewed graduate school as a bit mysterious. All respondents were in at least their third year of graduate school but less than one half reported that the criteria for earning their degree were very clear to them. Students often don't realize their responsibility to take control over their education and careers. The moral: ask questions, clarify answers, and in short, demand clear expectations."

2/3 felt UNPREPARED for duties of the typical academic position.
- grant proposal development
- lecturing
- management (personnel and financial)
- committee and administrative work

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Publication is critical in the research process, but:

- 57% felt inadequately prepared to publish.
- 68% were unaware of the customary practices for authorship.
- 66% felt unprepared for determining when/how to publish papers.

In other words, find a Good Environment
- people
- work ethic
- track record
- resources ($)

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Pick a Mentor that Fits Your Learning Style

Choose the right mentor
- shared scientific interest
- process vs. product

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Nobel Laureate Dr. Tom Cech says…

If people don’t seem like they would be fun to work with, I would use that as a reason to turn them down. Even if they have a lot of papers and seem to be very smart, I think you might want to think twice about hiring them.

- Thomas Cech, former HHMI president

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Closing Thoughts

Prepare yourself at the academic level
- gain knowledge
- learn to gather and communicate new data
- publish your ‘product’

Prepare yourself at the personal level
- know your strengths and improve your weaknesses (writing?)
- have reasonable goals and expectations (where are the jobs?)
- be ready to ride the highs and lows (they will occur)

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Choose the right mentor
- shared scientific interest
- process vs. product
** LECTURE 2 **

**Theme: Personal Responsibility**

- Safety (Personal & Group)
- Lab Citizenry
- Ethics
- Awareness of boundaries

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**Safety and Grad Students**

“There are more national regulations governing the treatment of lab animals than exist for protecting graduate students.”

S. Sanford
HMS Beagle Biomednet Magazine (1999), 68:1-6

**Bottom Line:** You are responsible for your safety and that of others.

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**The Safety Officer**

Most labs have a safety officer

- know who this is!
- a ready source of training
- a liaison to Environmental Safety Division (ESD)
- keeps track of required paperwork!
  - RTK
  - Hazardous Waste
  - Radioactivity
  - Microbiological Practices (not on ESD site!)
  - keep copies of your training records for the next rotation

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**Safety – Personal Experiences**

Anyone have anecdotes?

- cuts
- chemical exposure
- radioactivity exposure
- biological exposure (pathogens)
- electrical hazards
- equipment hazards
- fires

It can happen to you!
If not you, then someone you know!

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- Roof (above 4th floor)
- 4th floor (above tank)
- 3rd floor (lab with LN2 tank)
- 2nd floor ceiling (ceiling beam acts like trampoline)

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**Safety – UGA (2003, Pharmacy)**

Twenty-six classes have been relocated indefinitely as the result of a fire in the R.C. Wilson Pharmacy Building Wednesday morning.
Safety – UGA (2011, Biosciences)

The 2011 Biosciences Fire


Get on Listserves!

Safety - Key Points

- Be AWARE of hazards, your surroundings, and existing standards.
  - chemical (MSDS)
  - electrical
  - radiological (beta vs. gamma; weak vs. strong)
  - biological
  - sharps
  - many others!

- Know proper HANDLING and DISPOSAL of hazardous items; DON’T ASSUME that others know the hazards.

- STAY CALM. Don’t over-react and CONTACT ESD for advice.

- Keep a list of emergency contact numbers for EVERYONE in the lab.

- Try not to work alone.

Safety - Key Points

Steps For Handling an Emergency

Assess
Communicate
Neutralize and Contain
Evacuate
- get advice from ESD
- tell your lab neighbors
- NaHCO₃, spill pillows, towels
- call 911, ESD, tell your lab neighbors

Evacuate

Safety - What would you do?

What would be your response to:

- concentrated HCl spill?
- glacial acetic acid spill?
- concentrated NaOH spill?
- MeOH spill?
- Benzene spill?

Choosing a Thesis Lab - a Two-Way Street

Your advisor decides on who to hire/recruit for their labs.

Your advisor tries to recruit the best personnel possible.

- smart
- fun (T. Cech’s comment)
- enthusiastic
- experienced (i.e. published) or trainable
- other aspiring qualities

You are being vetted. Be a Responsible Lab Citizen . . . and yes, you will make mistakes, just own up to them!

http://www.youtube.com/watch?v=MVOIkcc74us

Not everyone will have your standard!
Date: Sun, 7 Dec 2003 20:48:38 -0800
From: wenming@pdx.edu
Subject: position application

Dear Professor:

I am very interested in research position in your lab. My background is molecular microbiology (yeast and E. coli) and human molecular genetics. I am proficient of various molecular biology lab skills, including recombination genetic techniques, nuclear hybridization and protein purification, such as: PCR, RT-PCR, 5' and 3' Race-PCR, Primer extension/nuclear protection, construction of c-DNA library and micro-array, transposon and insertion mutagenesis, gel mobility shift and footprint, Northern, Southern and Western blot and chromatography; FISH and CGH, and as well as various bioinformatics skill.

Research projects:

a) Screening gene alteration of breast cancer by CGH;
b) Identifying new regulator in signal passway using random mutagenize;
c) Investigating gene expression and regulation with recombination genetic methods;
d) Over-expression membrane transport in E.coli and yeast

e) Cloning gene using degenerated primers
f) Studying protein localization and interaction using multi-Fluorescent protein fusion and FRET, etc.

g) Purification of membrane protein by chromatography, 2D Gel.

Through many years' training and research, I have assimilated many theories and methodologies on Molecular Cell Biology. Therefore, I am confident of my ability to properly perform my duty. If you are interested my background, I can send you my research papers.

With My Best Regard!

Wenming Gao

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On 7 Jan 2004 at 13:25, Walter K. Schmidt wrote:

Dear Dr. Hohmann,

I have received an application from Dr. Wenming Gao concerning a post-doctoral opening that I have. He lists a manuscript on his CV derived from work in your lab, which is apparently being reviewed by the Journal of Molecular Microbiology. Can you please detail Dr. Gao's contribution to this article and any additional information that you believe is pertinent to his being able to conduct research on yeast proteases? I would appreciate a candid response.

wks

From: "Stefan Hohmann" <hohmann@gmm.gu.se>
To: "Walter K. Schmidt" wschmidt@bmb.uga.edu
Date: Wed, 07 Jan 2004 19:42:58 +0100
Subject: Re: Dr. Gao

Dear Dr. Schmidt,

I regret to tell you that Dr. Gao has fabricated letters of recommendation, listed publications that do not exist and even does not hold a PhD. We are fully aware of the situation, have raised charges at the Swedish police and informed the US embassy in Sweden. I also heard that he made incorrect statements about his visa to get appointed in Portland. We are very upset about this and hope that we have taken the appropriate measures to stop this person.

Best regards and good luck with your search.

Stefan Hohmann

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Integrity and Science (2002)

- Authenticity of foreign transcripts questioned
  - US News and World Report
  - David Meyer, UCLA Dean of Graduate Studies
  - Assoc. of American Medical Colleges discussion forum

- Dr. Sung (Burroughs-Wellcome Fund) responds.
  - Should be tolerated but not considered acceptable
  - Fraud is a necessary evil in certain systems

- Dr. Rao (MCP Hahnemann) responds.
  - Scientific integrity must not be compromised!

Who’s Right?

Depends on era and expected social norms

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Examples of Misconduct in Science

- **Isaac Newton** may have adjusted calculations to fit observations.
- **Gregor Mendel** (geneticist) published results that were “cleaner” than those observed experimentally.
- **Louis Pasteur** failed to cite his use of a competitor’s anthrax vaccine.
- **Robert Millikan** (physicist) failed to mention the elimination of some data points in publications.
- **Robert Gallo** (virologist; “discoverer” of HIV) allegedly misappropriated samples from another laboratory. Despite recognition as great scientist, Nobel is out of reach.
Examples of Misconduct in Science

- **Peter Seeburg (Genentech)** - first recombinant hormone (hGH)
  - cDNA sample for blockbuster drug stolen from academic lab
  - “I regret it, but that’s the way we did it 20 years ago”
  - central figure was recently head of Max Planck Institute; now Board of Directors

- **Baltimore (Cal-Tech) / Imanishi-Kari (MIT)** – Immunology
  - allegations that published data did not match lab notebook’s data.
  - multiple investigative panels.

- **William Summerlin (Sloan Kettering)** - tissue transplant biology
  - fabricated data using a felt-tip marker!

- **John Darsee (Harvard)** - gift authorships
  - caught fabricating data.
  - more than 10 primary journal articles / 45 abstracts were retracted.
  - co-authors unaware that they were listed as authors.

Scientific Integrity Means…

- **Honesty reporting your own research and background**
  - not misleading others.
  - acknowledging others when appropriate.
  - tolerating honest errors and differences of opinion.

- **Doing no harm**.
  - protecting human subjects, animals, and/or the environment within the ever-changing boundaries of normative ethics.
  - using resources for intended purpose.
  - protecting the rights of the accused / whistle-blower.

- **Deviations** from the above are considered *misconduct*

**LECTURE 3**

Ethics Module (continued)

- **Taking risks** is essential for establishing niche/name recognition.
- **outside the box ideas require data** - if you are not mainstream, you must be convincing (e.g. Germ Theory)!
With Risk comes Responsibility

- keep your research stay within established societal boundaries; (i.e. follow the rules)
  
  …, but the rules can and do change...

Scientific Integrity Means…

- Honestly reporting your own research and background.
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  - using resources for intended purpose.
  - protecting the rights of the accused / whistle-blower.

- Deviations from the above are considered misconduct

UGA Policy on Responsible Conduct in Research and Scholarship

https://research.uga.edu/compliance-training/rcr/

- “The purpose … is to provide the UGA community guidelines for reporting and investigating allegations of research misconduct.”

- Applies to and is the Responsibility of everyone.

- Addresses Fabrication, Falsification, and Plagiarism.
  - the big three

- Also addresses others issues:
  - ethical treatment of people, animals, etc.
  - misrepresentation of yourself or your work
  - do no harm (spam, computer hacking, etc)
  - misappropriation

Office of Research Integrity (ORI)

http://www.ori.dhhs.gov

- Federal agency responsible for Policy on Responsible Conduct in Biomedical Research (RCR)

- Addresses Fabrication, Falsification, and Plagiarism.
  - the big three

- Monitors ongoing investigations

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<td>University of Pittsburgh</td>
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The Big Three

- Fabrication: making up experiments and/or data.
- Falsification: changing results/data without statistical justification.
- Plagiarism: appropriating the words or ideas of another and presenting them as your own.

You are responsible for knowing the rules!

Reading: Scientists Behaving Badly?

“...The modern scientist faces intense competition, and is burdened by difficult, sometimes unreasonable, regulatory, social, and managerial demands. This mix of pressures creates many possibilities for the compromise of scientific integrity...”

1-10: Sanctionable Offenses

- Fabricating or 'cooking' research data
- Ignoring major aspects of human-subject requirements
- Not properly disclosing involvement in firms whose products are based on one’s own research
- Relationships with students, research subjects or clients that may be interpreted as questionable
- Using another's ideas without obtaining permission or giving due credit
- Unauthorized use of confidential information in connection with one’s own research
- Failing to present data that contradict one’s own previous research
- Circumventing certain minor aspects of human-subject requirements
- Overlooking others' use of flawed data or questionable interpretation of data
- Changing the design, methodology or results of a study in response to pressure from a funding source
- Publishing the same data or results in two or more publications
- Inappropriate assignment of authorship credit
- Withholding details of methodology or results in papers or proposals
- Using inappropriate research designs
- Dropping observations or data points from analyses based on a gut feeling that they were inaccurate
- Insufficient or misleading data or conclusions related to research projects

Peer Review: Keeps Things in Check (most of the time)
Retracted papers damage work on DNA repair

Mentor vs. Trainee

UGA tried to recruit him in 2003 as a GRA Eminent Scholar

Chemistry Designer debate

A high profile recruiter, a graduate student and two anger citations. Olive Clark, Deputy is reported to announce that has marked the university community.

“Everybody gets warned, but nobody listens.”

Computer Ethics

- Computers on campus are for University use only.
- Your UGA email account is not entirely private.
- Prioritize work-related use over social media, personal email, etc.
- Breaking the policy can terminate your computer privileges or worse, have you expelled from UGA.
- All privately maintained internet pages on University computers:
  - are the responsibility of the author
  - shall respect the acceptable-use conditions
  - shall obey all applicable laws
  - shall not publish or refer to commercial advertisements
  - must have a disclaimer

Personal Ethics I

Policy on Arrests and Convictions

Any student employed with a code (other than a minor traffic code) shall report being charged with a crime to the Office of Legal Affairs within 24 hours of the occurrence or the end of the current work period, whichever is sooner. Failure to report may result in the immediate termination of employment. The Office of Legal Affairs shall determine the nature of the charge.

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**Lecture 4**

**Theme: Introspection**

- Common characteristics of scientists
- Career Development
- Time Management
- Project Management
- Plan B

**Personal Ethics II**

- **Be sensitive** to others’ cultures (customs, holidays, etc.).
  - looking down as a matter of respect vs. deception.
  - religious customs demand respect.
  - some potential taboo topics (politics; religion).

- **All personalities** have the opportunity to **contribute**.
  - sometimes the personality is the reason behind the idea!
  - topic for next class (READ!)

- **Be proactive** when there is conflict.
  - ask for advice
  - get others involved if needed

**Closing Thoughts:**

**Achieve a High Ethical Standard**

*Star Wars – The Clone Wars (S1E12)*

"Fail with honor rather than succeed by fraud."

- **Be critical** of your data.
  - require first-hand knowledge of data; don’t take data on faith
  - repeat observations

- **Be cautious.**
  - don’t over interpret data, even when it supports your theory
  - be suspicious of non-peer reviewed data.
  - work with ethical people

- **Set a proper example** for others to follow.
  - undergraduate researchers
  - your future students
  - senior lab members
  - colleagues

**Your scientific reputation (i.e. business reputation) requires a lifetime to build, and one small misstep to ruin.**

**Common Characteristics of Successful Scientists**

(in my opinion ➔ the 4 Ps)

- **Passion**
  - Everyone starts out with this - in most it will grow; in some it will wither.

- **Patience**
  - A PhD is a long-term goal and developing your professional skill set takes even longer.

- **Persistence**
  - Failed experiments / theories and criticism are part of the discovery process.

- **Professionalism**
  - Building your scientific skills and reputation is an ongoing process and begins now.

**Common Characteristics - Passion**

- **Are you ready to apply yourself 100% ...**
  - at the bench?
  - for your career?
  - to improve your weaknesses?

**Common Characteristics - Patience**

- **Do you have good time management skills...**
  - for short-term goals?
  - for long-term goals?

- **Do you have a career goal?**
  - what is normative time for your career?
  - what milestones do you need to achieve?
Common Characteristics - Persistence

Failed experiments / theories and criticism are part of the discovery process.

- How do you handle criticisms…
  - of your science?
  - of your personality?

- How resilient will you be…
  - when not achieving personal milestones?
  - when your experiments aren’t working?

Common Characteristics - Professionalism

Building your scientific skills and reputation is an ongoing process and begins now.

What does this encompass?

Developing good communication skills
- lab meeting and thesis presentations;
- treat all presentations like job interviews
- take advantage of every writing and presentation opportunity
- be efficient (Snyder’s three line rule)
- learn to market yourself; attend conferences and begin networking

What does this encompass?

Developing organizational skills
- prioritizing for the short term AND long term.
- defining research in terms of projects with time tables
- multi-task! make effective use of limited pieces of time (the 5 min project)
- being your own secretary

Thoughts on Time-Management

- When do you expect to graduate with your PhD?
  by committing to a timeline, you are also committing your effort (no free rides). how will you prevent getting side-tracked? (e.g. TAing)

- What is the normative time to degree in your field?
  5.5 years is the average for many ILS programs at UGA.

- Do you have a career objective?
  does your plan allot for additional training (post-doc) or retraining?
Effort and Time-to-Degree

It takes about 10,000 hours of practice to attain expertise.

10,000 productive working hours is equivalent to 5 years
- 40 hrs/week x 50 weeks/year = 2000 hours per year
- you ultimately decide how quickly you will progress through a program

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<td>60</td>
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What are the Consequences of Poor Career Development?

Career Development Resources are almost Unlimited
- Your peers
- Your mentor
- Your committee
- Yourself
- PubMed (use the MyNCBI tool!)
- Trade magazines - The Scientist
- Web - Tomorroy’s Professor
- Textbooks
- Books on Project/Time management
- Courses/seminars (Grad School leadership conference and others)
- Individualized Development Plan

Quotes from Tomorrow’s Professor

Communication Skills
“Tell them what you are going to say, say it, and then tell them what you said.”
“Your ability to communicate well, to show enthusiasm, and to make good use of various media in a job talk all correlate highly with good teaching.”

Gathering / analyzing data
“Treat publishing as a forethought, not an afterthought.”
“What does first authorship mean? Usually it is the person who conceived, designed, and carried out the experiments and then took the lead in writing up the results.”

Additional Thoughts on Authorship
- International Committee of Medical Journal Editors - Authorship Guidelines
- Authorship credit should be based only on:
  1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; 3) final approval of the version to be published. 4) conditions 1, 2, and 3 must all be met.
- Acquisition of funding, the collection of data, or general supervision of the research group, by themselves, do not justify authorship.

Inference Trees
- you cannot afford to be stubborn about alternative techniques and explanations!
- always seek constructive criticism (i.e. wisdom of others).
** LECTURE 5 **

Theme: Career Development

- Hiring Ads
- Funding
- Managerial Skills

What is Career Development?

Preparation for your Future Career should include:
- understanding your strengths / fixing your weaknesses
- acquiring knowledge (rigorous coursework)
- publishing research (writing/thinking skills)
- teaching (planning/management/communication skills)

- keeping your knowledge current
- developing an ability to secure funding
- developing managerial skills
  - time management
  - finance management
  - people management / cultural sensitivity
- establishing reasonable expectations of career choices

Discussion of Hiring Ads

YEAST BIOLOGIST POSITION AT DUPONT

DuPont, a science-based company leading the introduction of biotechnology for industrial applications, is seeking a Principal Investigator in the area of Yeast Metabolic Engineering to join its Central Research and Development organization. The successful candidate will be part of multidisciplinary teams within a large community of molecular biologists, microbiologists, biochemists and biochemical engineers working on the production of biocatalysts, pharmaceuticals and macromolecules.

This position will be open to candidates with a Ph.D. and a minimum of two years of Post-Doctoral training in Microbiology of yeast or other fungi, with strong experience in microbial physiology, molecular genetics, and biochemistry. Preference will be given to candidates with a broad understanding of microbial metabolism and physiology spanning several areas such as metabolic engineering, gene regulation, genetic selections or anaerobic metabolism, and a demonstrated track record of patents and/or publications in microbial physiology. Candidates should be self-motivated, thriving in a research team environment and committed to use biotechnology towards commercial and societal impact.

DuPont offers attractive salaries and comprehensive benefits.

Apply through DuPont’s web site:
Research Investigator - Yeast Molecular Biology/Physiology-5729091218
https://dupontimpl.taleo.net/careersection/2/jobdetail.ftl?lang=en&job=45866

How to Keep Up with the Literature?

- Reading - primary literature (Reading Primary Literature)
- Automated Pubmed notifications - My NCBI
- Scientific “Leisure Magazines” (The Scientist)
- Journal Clubs – Lab, departmental, institutional

Why Seek External Funding?

- Can be significantly more $$$ than an RA (e.g. NSF)
  - UGA has given $250 (Travel) for just submitting an application
  - restrictions: international students, advanced (MSc) degree holders, dual degree track (MD/PhD, DVM/PhD)
- Grant proposal required for your Written/Oral Exam!
- Stimulates forward thinking
- Improves writing skills
- Improves your CV
- Independence to follow your interests
- Future academic careers demand this ability

Funds for Non-US Citizens Also!
(ASA, MDA, Damon Runyon post-doc, etc.)

An Academic Hiring Ad (1)

TENURE-TRACK BIOCHEMISTRY FACULTY POSITION
Radford University (VA) (~8000 students)

The Department of Chemistry and Physics at Radford University invites applications for an Assistant Professor position in Biochemistry, to begin in Fall 2009. Primary teaching responsibilities will involve lectures and laboratories for Biochemistry and General Chemistry. Applicants must be committed to teaching excellence and hold a Ph.D. in chemistry, biochemistry, or related field. The successful applicant is expected to develop an active research program involving undergraduate students. Applicants should send a letter of application, current vita, transcripts, a statement of teaching philosophy, a proposed research plan, and three recommendation letters. Applications should be addressed to Dr. Joseph Wirgau, Chair of Search Committee, P.O. 6949, Department of Chemistry and Physics, Radford University, Radford, Virginia, 24142. Consideration of applicants will continue until the position is filled. Information on the university is available at http://www.radford.edu and on the Chemistry Program at http://www.radford.edu/~chem-web. Radford University is an EO/AA employer committed to diversity.
Extramural Funding
Learn This Skill Now, Not Later

- Ask your Mentor
- Grad School Info Sessions
- Call Private organizations
  - AHA, MDA, Damon Runyon, etc.
- Searchable databases
  - Community of Science (Pivot)
  - GrantsNet
  - ResearchResearch
  - NIH RePORTER
- Other UGA sources:
  - OVPR, UGA Grad School (both lousy) > Cornell, UCLA
  - Dr. Schmidt’s webpage

Your Thesis Committee

Members Should Be:
- smart: good ideas
- busy: multi-taskers
- self-less: give your education top priority
- honest: speak the truth

Secrets of the Inner Circle
Hopkins Magazine (Spring/Summer 2001), p. 56

** LECTURE 6 **

Theme: Career Development

- Professional Development Resources
- Timelines

Achieve Reasonable Employment Expectations

In the Academic Track (research-intensive institution), what is the average age...

1) of a newly hired Assistant Professor?

2) when the first large federal research proposal is funded? (NIH, NSF, etc.)

3) of promotion to Associate Professor?

The Academic Track is a Long Haul

First faculty appointment occurs at a later age

- Norka Ruiz Bravo, Deputy Director for Extramural Research, NIH

Star Wars: The Clone Wars (S1E19)
“IT is a rough road that leads to the heights of greatness.”
What Factors Contribute to Delays in Entering the Academic Track?

- Median age for PhD (2002): 29 years
- Avg. time in Post-Doc (2002): 5-6 years
- A lot of competition
- No guarantee of a job on 1st try
- Family issues and lack of family-oriented benefits
  - Parental leave, childcare options, etc.

What Do You Know About Industry?

"...the maxim in academia that ‘Good science will always sell itself’ is given in industry as ‘Good science has to be sold’... one of the major survival skills for the academia-to-industry transition is an understanding of this small but oh-so-important piece of philosophy. It affects the way you write your CV, the way you interview, and the way you ask your boss for a raise. Products and ideas are sold daily in this parallel universe.”

Dave Jensen, ScienceCareers.org, July 21, 2000

Comparing Industry and Academia

<table>
<thead>
<tr>
<th>Small Companies</th>
<th>Large Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Often difficult to publish</td>
<td>* Publishing is encouraged</td>
</tr>
<tr>
<td>* Requires risk tolerance</td>
<td>* Department centered</td>
</tr>
<tr>
<td>* High visibility in the organization</td>
<td>* Very little risk of instability</td>
</tr>
<tr>
<td>* Lots of autonomy in the company</td>
<td>* Visibility in the department</td>
</tr>
<tr>
<td>* Little bureaucracy and hierarchy</td>
<td>* Less autonomy</td>
</tr>
<tr>
<td>* Room for rapid growth</td>
<td>* More bureaucracy</td>
</tr>
<tr>
<td>* Big mergers - melding of corporate cultures</td>
<td>* Formal presentations and proposals</td>
</tr>
</tbody>
</table>

Many Development Resources (3 min)

- Books & Articles:
  - Three Magic Letters (GRE scores do not correlate with success)
  - Project Management for Dummies
  - Adviser, Teacher, Role Model, Friend (there are differences)
  - Eats, Shoots & Leaves
  - Writing Papers in the Biological Sciences
  - Essentials of Writing Biomedical Research Papers
  - Making the Right Moves
  - Should I Stay or Should I Go? – Class Reading Assignment
  - Doctoral Education Mismatch – Class Reading Assignment

- Videos:
  - Partners of the Heart
  - Naturally Obsessed

- Graduate School Programs:
  - seminar, workshops
  - current offerings

- Online:
  - Tomorrow’s Professor
  - Science magazine

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The Center for Bio/Molecular Science and Engineering at the Naval Research Laboratory in Washington DC invites applications for a Postdoctoral Research Fellowship in synthetic biology.

The successful candidate will be responsible of genetically engineering bacterial and fungal cells that integrate melanin biosynthesis with programmable functions in order to develop new living materials. The candidate will have 2-3 years of financial support, access to state-of-the-art laboratory facilities and an opportunity for permanent employment based on performance and funding.

The candidate must have acquired a Ph.D. in microbiology, molecular biology or a related field within the past five years and have demonstrated experience with genetics and molecular biology techniques. Previous experience with synthetic biology, fungal biology and biochemical engineering is desirable but not required. The candidate must be well-organized, self-motivated and possess excellent written and oral communication skills.

The Positional Research Fellowship is available through a competitive process with the American Society for:

Education Program or National Research Council Research Association Program and will offer a salary of $76,000 plus benefits. U.S. citizenship or permanent residency is required. Qualified candidates should send application materials, including a resume, description of research accomplishments and interests, contact information of three references to e-mail to: Zheng Wang (zheng.wang@nrl.navy.mil). The Naval Research Laboratory is an Equal Opportunity Employer.
How Do You Improve Your Odds for Successful Career Advancement?

1. Be prepared to rely on yourself
2. Seek out mentors
3. Establish your skills early
4. Understand future hiring trends
5. Start developing a Plan B
6. Read literature on career development
7. Work hard with a purpose

Be Passionate, Patient, Persistent, and Professional
It will Pay off in the end!

** LECTURE 7 – option A**

Theme: Mental Health

Why be Concerned About Mental Health?

- Mental health affects everyone; directly or indirectly.
- Diagnosed mental health problems impact ~20% of the US population; estimates of ADHD alone range from 5% (APA) to 11% (CDC) of population.
- ~50% of individuals with mental illness seek treatment.

What Resources are Available to You?

ON Campus:
- Counseling and Psychiatric Services (CAPS)
- Center for Counseling and Personal Evaluation
- Psychology Clinic
- Aspire Clinic

OFF Campus:
- Samaritan Center for Counseling and Wellness
- Advantage Behavioral Health Systems
- Various crisis hotlines