Academic Career Paths and Job Search

Mary Lou Soffa, University of Virginia
Susan Rodger, Duke University
Michelle Mazurek, University of Maryland
All academic positions involve research, teaching and service

Research
engage in scientific discovery, involve graduate and undergraduate students, fund research

Teaching
active teaching, mentoring, advising

Administration/Service
Chair, serve-on committees, etc.
- Departmental
- School /College
- University
- Professional
## Types of Colleges/Universities

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<th>Type</th>
<th>Degree Program</th>
<th>Emphasize</th>
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<td>Ph.D.</td>
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<td>Selective Liberal Arts</td>
<td>B.S., B.A.</td>
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Example of Different Expectations Faculty

Research Institution:
60% - 80% Research
10% - 35% Teaching
5% - 10% Service

M.S./ B.S. College or Teaching focused at R1:
50 - 80% Teaching
10 - 30% Professional Development
10 - 20% Service
Different Academic Positions within an Institution and Expectations

Professorial Ranks
Assistant
Associate
Full
Distinguished/Chaired/Endowed Professor

Instructor – teaching & service
Lecturer - teaching
Postdoctoral positions - research
Rest of talk

Research Universities – Mary Lou Soffa

Teaching-focused Positions – Susan Rodger

Search – Michelle Mazurek
Research Expectations: Research University

- **Publications** – journal, conferences, workshops (focus on top peer-reviewed venues)
- **Funding** to support research group and summer salary (peer-reviewed, basic vs applied, grant vs industry)
- **Graduate student mentoring** (and their professional success)
- **Reputation and Impact**
  - Higher in rank: more visibility and international reputation – invited talks, conference org., journal editor/ed. boards, professional org roles
- **Maybe:**
  - MS/Undergraduate research mentoring
  - Patents, software artifacts,...
Teaching: Research University

- Teaching **load**: typically 1:1 to 1:2
- Mix of undergrad and grad courses
- Teaching assistants for grading, office hours, and overall course management help

- **Promotion and tenure**: Good research essential, good teaching useful
- **But**: you’ll be teaching for years – worth it to yourself to do a good job
Service Expectations: Research University

Committees and educational/administrative activities

- Department
- School
- University

External Professional Service

- Program committees
- Funding panels
- Professional society involvement
- Journal editorship; program chair, conference organization

Higher in rank – more external service

Pre-tenure: Favor research-oriented service

Be selective: choose roles that are important where you can engage – “power” committees
Gaining the Necessary Skills

Graduate School!

Research

apprenticeship – learn from adviser, doing it, and others
How do ideas come?
How to organize research?

Teaching

Teaching experience, teaching even if don’t have to

Service

Organizing student organizations/support groups –
Women in CS
Working on department committees
Volunteering at conferences
Challenges

**Balancing** the three roles – same as in graduate school

- All three can be infinite sinks
- Should not spend all time on one

**Networking** – forcing yourself to talk to strangers

**Pressure** of tenure and promotions
Rewards

• Love of research and **freedom** to do research that you want
• Working on research with **graduate students**
• Involving undergraduates in research
• Making **friends** across the world
• **Variety and flexibility** of work
• Creating the kind of career that you want – **independent** (as long as meet expectations)
Post-Docs

Continue research with another mentor
- more papers, etc
- a new field

-Funding
  Fellowship you apply OR university/department, OR professor’s research grants.

Best-case Scenario
  1 - 2 years, good mentor, high-ranked school that will help you transition to the academic position you want
Some advice: pre-tenure years

• Find mentors and professional cohorts
• Collaborate if you can.
• Learn to say no politely and suggest alternatives
• Prioritize!! Especially in research.
• Choose your teaching and service assignments well.
• Enjoy your work and colleagues!!
Teaching Position
What types are out there?

- Teaching at small college
  - Professor (assistant, associate, full) with tenure
  - Lecturer

- Teaching track at Research University
  - Many different types/titles
  - Teaching Professor
    - Professor of the Practice, Clinical Professor, Lecturers with SOE (CA)
  - Few with tenure, most on contracts
  - Lecturer, Senior Lecturer
Teaching Position Expectations

- Teach 2-4 classes per semester
- Have busy office hours
- Teach out of your specific area (e.g. intro programming sequence, non-majors)
- Involve undergrads in research projects
- Attend meetings (dept., campus)
- Serve on campus committees (technology, etc.)
Teaching Position
Research

- Fewer institutional resources
- No graduate RAs
- Get undergraduates involved
  - Distributed Research Experience for Undergraduates
  - Collaborative Research Experience for Undergraduates
- REU through NSF
- Local programs at undergraduate institution
Teaching Position

Getting Hired/Cover Letter Essentials

- Your focus is on teaching.
- You can document relevant experience related to teaching.
  - Teaching Assistant
  - Center for Teaching programs
  - Instructor of Record for a course
- You can teach intro CS courses and courses for non-majors.
- Your teaching focus (e.g., systems) matches what is advertised.
Teaching Position: Challenges

- Perception that less prestigious than research focused/university
- Intense focus on students
- Staying engaged in research
- Infrastructure (e.g., computer services, grant administration)
- Small dept. (~5 profs) or small group in a large research department
- Salary: possibly lower?
Teaching Position: Rewards

Close relationship with undergrads
Be a member of the university culture
Chance for leadership and influence
Matches beliefs/lifestyle
  Teaching is your gift and you want to share it with others
Possibly less travel
Flexible schedule for families
Career Path Option
What is a post-doc?

Training opportunity whereby a person can deepen his or her expertise and/or research skills for a few years, en route to a permanent position.

Typically funded either by a fellowship awarded directly to the Post-Doc or by the institution at which they will spend a limited time.

http://cra.org/postdocs/workingpaper.php
Some Post-doc Motivations

Timing: Graduate “off season”, Two-body issues, Difficult job year

Improve job opportunities: Strengthen research, Work in a highly regarded institution
Learn new area, field
Work with a specific expert: additional mentoring
Experience different type of university
What is a GOOD postdoc?

Used to expand experience
entering a new research discipline
gaining a distinctly different perspective on the scholar’s current research base

Specific & relevant intellectual growth
working with a particular mentor or on a particular project

Two years in duration

http://cra.org/postdocs/
GOOD postdoc position offers:

Mentoring & guidance that directly supports professional development
  not simply serve as a contract researcher

Significant opportunities to explore independent research topics
  in addition to supporting existing research efforts of the mentor’s group
  manage operational aspects of a project under the supervision of the mentor

Enhance the breadth of their research
  exploring new fields or new perspectives
  not simply refine material from PhD

http://cra.org/postdocs/
Expectations

Variable, some combination of:

Teaching, Research, Supervising, Mentoring, Organizing

The ratio will depend on your own long-term goals, and the position
Should get a clear understanding BEFORE accepting job
Challenges

Low pay (compared to faculty, industry)

Role in the university
  Not a student, but not faculty
  Depending on school, can feel isolated

May not have independence
  working on PI’s grant

If you have family, can be difficult to move for a temp position
Research Scientist

No tenure
  “Soft money” – grant writing!
Less requirements (service, teaching)
  Can focus on research
Dependent on PI
  Hired to get things done for grant
  Not independent
  Need a good advocate, well-funded lab
Possibly easier work/life balance
Job Search in ~2 years?
What to do now?

• Publish great work!!
• Go to Conferences, meet researchers in your area
• Figure out research and/or teaching focused
  • Teaching—attend a SIGCSE conference, try to teach a course, think about teaching initiatives and philosophy
• Attend CRA or CRA-W Career Mentoring Workshops
  • http://cra-w.org/ArticleDetails/tabid/77/ArticleID/50/Career-Mentoring-Workshop-CMW.aspx
Some numbers (YMMV)

I applied to:
35 faculty, 2 research labs
Mostly CS, 2 iSchools, 1 systems engineering
Systems, security, and unspecified
US News rankings from 1-99

Informal heuristic:
25-30 applications -> 4 interviews -> 1 job
What’s in an application?

- Pages of online forms
  - Takes longer than you think!
- Cover letter (lightly personalized)
- CV
- Research and teaching statements
- 3-5 references
  - People who can write knowledgeable letters
- Diversity – sometimes separate statement, sometimes mention in teaching / cover letter
- Due dates Nov – Jan, often not firm
Phone/On-site interviews

• Sometimes phone interview first – 1 hour typically with search committee
• On site: 1, 1.5 or 2 days
  • Mostly 30 min slots throughout the day
  • Faculty 1 on 1, dept chair, dean, students
  • Job talk
  • Sometimes demo lecture (teaching school)
  • 3+ meals
A long day!

- Not more than 3 in 2 weeks (Greg’s rule)
- Breakfast often at 7:30, dinner until 9-10
- Very limited breaks between slots
- Lots of walking, going outside
- Lots of repetition
Research Talk

- Usually 45 min in 55 min slot
- Prepare for lots of interruptions
  - Plan to make shorter on the fly
  - Don’t go over
- Goal: Accessible to non-specialists but also deep technical content (this is hard)
  - Don’t: excessive background (need some)
  - Do: provide framework for research agenda
Things you will be asked

• Why do you want to be in academia?
• Where else are you interviewing?
• Tell me about your research/teaching (current, agenda)
  • Something not in your job talk
  • Something in your field you aren’t working on
• Who here do you expect to collaborate with?
• Where do you expect to get funding?
• What lower-level classes can you teach?
Questions you should ask

• How many faculty? Teaching load?
• How much (if any) TA support?
• What is the quality of grad students? How recruited
• What is the support for new faculty: mentoring, help with grants, teaching priority and relief, etc.?
• What is the review process? Tenure rate?
• What about IT, admin, grant-writing support, etc.?
• How collaborative are the faculty members?
• What is it like to live in this area? Where do faculty typically live?
Where to find job listings

- CRA: [http://cra.org/ads/](http://cra.org/ads/)
- Listservs, e.g. [http://www.sigsoft.org/seworld/](http://www.sigsoft.org/seworld/)

- Many have RSS feeds!
Job Search – Closer to getting out

Prepare CV and research/teaching statements
Get these materials reviewed
Talk to advisor/other faculty about where to apply
Apply to several places
Prepare/Practice interview talk
Be assertive
- my Duke story
How to get a post-doc

Can be posted in same venues as other academic jobs

Not always advertised
  Use Your Network!
  Give talks as you get closer to graduating

Remain in PhD lab
  Usually for timing reasons only
Moving between schools and positions

University to university
Not particularly difficult
If have tenure, usually get tenure
• But not in all cases: schools have different rules and moving to higher ranked school

University to teaching-oriented college
Must show evidence of being good teacher

Teaching-oriented College to university
Must show can do research - publications
Resources

CRA-W Career Mentoring Workshops:
http://www.cra-w.org/ArticleDetails/tabid/77/ArticleID/50/Career-Mentoring-Workshop-CMW.aspx

On Academic Life:
http://dynamicecology.wordpress.com/2014/02/04/you-do-not-need-to-work-80-hours-a-week-to-succeed-in-academia/

On Post-Docs:
http://cra.org/resources/bp-view/best_practices_memo_computer_science_postdocs_best_practices/

Tips on doing an academic job search:
http://matt.might.net/articles/advice-for-academic-job-hunt/
http://people.mills.edu/spertus/job-search/job.html
https://homes.cs.washington.edu/~mernst/advice/academic-job.html

Job Ads:
http://cra.org/ads/