

# Academic Career Paths: Research and Teaching

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# Lori's Journey

<u>Personal Life Milestone</u>	<u>Career Point</u>	<u>Year</u>
Married and moved .....	Start Assistant Professor, Rice	'85/86
.....	Complete PhD from U. Pitt	'86
First child.....		'88
Second child .....	the yankees move back north	'90
	First PhD student graduates	
	Start as Visiting Asst Prof, UD	'91
	Tenure track Asst Prof, UD	'92
Husband leaves industry to be high school teacher, summers off		'94
Third child.....	4 years in UD position	'95
	Promotion to Associate Prof	'98
Two teenage girls + 2 <sup>nd</sup> grader.....	Promotion to Full Professor	'04

# Tiffani's Journey

<u>Places I've Lived</u>	<u>Academic Milestone</u>	<u>Year</u>
N Little Rock, AR .....	Graduate from high school	'90
Milwaukee, WI .....	Complete B.S. from Marquette U	'94
Orlando, FL .....	Complete Ph.D. from UCF	'00
Albuquerque, NM .....	Start Postdoc at UNM	'01
Boston, MA .....	Radcliffe Fellowship at Harvard	'04
College Station, TX .....	Tenure track Asst Prof at TAMU	'05

# Research, Teaching and Service

- **Research**
  - engage in scientific discovery, involve graduate and undergraduate students, fund research
- **Teaching**
  - active teaching, mentoring, advising
- **Service**
  - Departmental
  - University
  - Professional

**Expected to do all three well!**

# Differences in importance?

- **Research universities:** Ph.D. program - emphasize research - but teaching, service important
- **Colleges/universities:** M.S. program- emphasize teaching - but research & service also important
- **Selective Liberal arts colleges:** B.S. program - emphasize teaching with scholarship a close second, but service important
- **Teaching-oriented colleges:** B.S. program - emphasize teaching & service but research can be expected
- **Within institution:** different priorities

# Example of Different Expectations

- **Research Institution:**
  - 60% - 80% Research
  - 10% - 35% Teaching
  - 5% - 10% Service
- **Teaching-oriented College:**
  - 50 - 80% Teaching
  - 10 - 30% Professional Development
  - 10 - 20% Service

# Different Academic Positions within an Institution and Expectations

## Professorial Ranks

- Assistant
- Associate
- Full
- Chaired Professor - endowed

## Administrative Ranks

Department Chair, Dean, Provost, President

Instructor - teaching & service

Postdoctoral positions - research

# Research Expectations in a Research University

- Publications - journal, conferences, workshops
- Funding
- Graduate student training
- Reputation
  - Higher in rank: more Visibility and International Reputation - talks, invited talks, involved in conferences, letters

Maybe:

- Undergraduate research mentoring
- Patents, software artifacts,...

# Professional Development in a Primarily Undergraduate Institution

- Research
- Teaching skills development
- Professional conferences, workshops
- Publishing
- Work with professional organizations

# Research in a Primarily Undergraduate Institution

- Time is the biggest problem
  - You're teaching full-time!
- Release time/travel is through grants
- Collaboration is important
  - Interdisciplinary
  - Among other institutions
  - Through organizations

# Research in a Primarily Undergraduate Institution

(cont.)

- Fewer institutional resources
- No graduate RAs
- Can get undergraduates involved
  - Distributed Mentor Project
  - Collaborative Research Environment for Undergraduates
  - REU through NSF
  - Argonne National Laboratories
  - Consortium for Computing Sciences in Colleges

# Teaching in a Research University

- Teaching load: typically 1:1 to 1:2
- Audience varies: undergrads, grads, mix
- Course material: intro undergrad up through core grad course, seminar in research area.
- Teaching assistants for grading, office hours, and overall course management help

**Good research but bad teacher – hard to be promoted.**

# Teaching in a Primarily Undergraduate Institution

- Teaching is primary responsibility - teach more often
- Audience is all undergrads
- Teach wider variety of courses
- Research area may be too specialized to teach as a course
- Teach the same course less often
- Smaller class size
- Teaching assistants, if available, are senior undergrads

# Service Expectations in a Research University

- Department committees
- University committees
- External Professional Service
  - Program committees
  - Funding panels
  - Professional society involvement
  - Journal editorship; program chair, conf organization
- Higher in rank, more external service
- Try to combine research-oriented with service

# Service in a Primarily Undergraduate Institution

- **College**
  - Committee work
    - Special needs: woman, computing - learn to say NO
- **Department**
  - Advising - formal and informal
  - Recruiting
  - Labs, work study, library acquisitions, clubs, ...
- **Community**
  - Consulting
  - Speaking

# 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 training, teaching even if don't have to

- **Service**

- Networking with others in area
- Working on department committees

# Challenges

- **Balancing** the three roles - same as in graduate school
  - All three are infinite sinks
  - Cannot spend all time on one
- **Networking** - forcing yourself to talk to strangers
- **Pressure** of tenure and promotions

# How do you find out how you are doing?

- Ask department chair and senior colleagues
- Read literature
- Make sure you are being evaluated and told how you are doing
- Keep your eyes open

Same as for graduate school

# Rewards of a Research University

- 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 of work
- Can create the kind of career that you want - independent (as long as meet expectations)

# Rewards of a Primarily Undergraduate Institution

- Opportunity to teach as a passion!
- Close relationship with undergrads
  - You can make a big difference
- Colleagues in various departments
- Chance for leadership and influence
- Flexible schedule
  - Especially nice for families

# Moving between schools

- **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

# Academic Career Paths: Time for Open Discussion!!

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