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# A Career in Academe

ACS Career Pathways Series

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# Assessing My Own Values and Interests

Individual to pair's activity

2

*same as bio? and bio?*

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## A Career in Academe: Agenda

- The Academic Career Pathway
- Crafting a Curriculum Vita
- Making Myself More Competitive
- Getting Hired for an Academic Position
- Being Successful: Your First Year on the Job

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## Trends and Outlook for Academic Jobs

- Growing or shrinking?
- Which segments are most promising (community colleges?)
- More use of non-tenured faculty?

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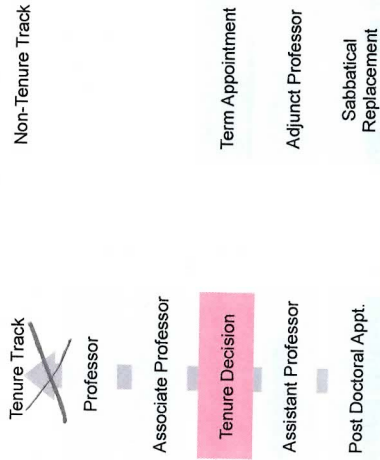
## Types of Academic Institutions

Type of institution	Number
Doctoral Universities	261
Master's Colleges and Universities	611
Baccalaureate Colleges	549
Associate Colleges	1669
Specialized	766
Other	85

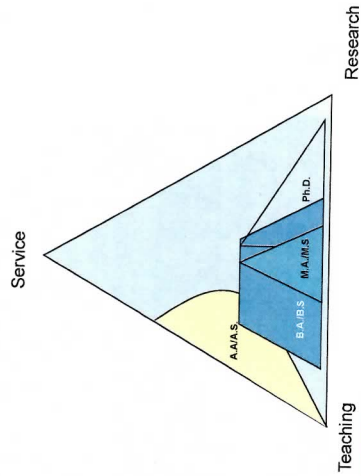
Source: Carnegie Foundation

*work*

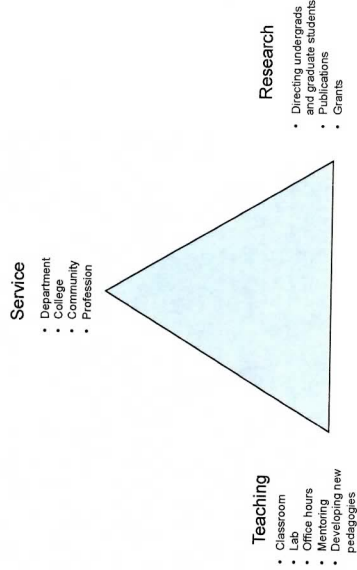
## Typical Academic Career Path



## Typical Job Responsibilities



## Basis for Tenure Decisions



## Job Responsibilities and Type of Institution

	Teaching	Research	Service
Ph.D. granting	<ul style="list-style-type: none"> <li>3 to 6 hours per week (lecture)</li> </ul>	<ul style="list-style-type: none"> <li>6 to 10 pubs in 6 years</li> <li>\$100K+ in grants</li> </ul>	
M.S. and Baccalaureate	<ul style="list-style-type: none"> <li>10 to 15 hours per week (lecture and lab)</li> </ul>	<ul style="list-style-type: none"> <li>2 to 3 pubs in 6 years</li> <li>\$20 to 60K grants</li> </ul>	
Associate	<ul style="list-style-type: none"> <li>20 plus hours per week (lecture and lab)</li> </ul>	<ul style="list-style-type: none"> <li>0 to 2 publications</li> </ul>	

## ACS Committee for Professional Training

- Develops and administers the guidelines for defining high-quality undergraduate chemistry programs
- Approves departments meeting guidelines
- CPT reviews approved schools on a five-year cycle
- Approval based on chemistry program's faculty, facilities, and curriculum.
- CPT requirements include:
  - What?
  - What?
  - What?

*Why care?*

## Research University: Research Responsibilities

- Adequate start-up funding from your institution
- Find research funding (NIH, NSF, DOE, DOD, PRF, state, industry, your university)
- Sufficient funding to hire post-doc(s)
- Projects suitable for both graduate and undergraduate students
- To publish in peer-reviewed journals (the key to tenure decision)

## Research Universities: Teaching Responsibilities

- One to four lecture courses per year
  - General chemistry
  - An undergraduate course in your field
  - A graduate course in your field
  - Often very large classes
- Support from lab instructor or teaching assistant
- Must meet "minimum standard" for tenure decision
- Other faculty members will be trained in your sub-field

## Teaching at Two-Year Colleges

- No research (in fact, sending research proposals when applying could be “the kiss of death”)
- Usually, only general and organic chemistry courses offered
- Generalists are valued
- Can require 20 or more contact hours (lecture and lab) per week

## Non-Tenure Academic Positions

- Types:
  - Sabbatical replacements
  - Term appointments (two-year contract, for example)
  - Adjuncts (usually one course)
- Sometimes given little respect by tenured faculty and students
- Limited job security
- Provide experience and rounds out resume

## The Upside and Downside of an Academic Career

Small group activity

## A Career in Academe: Agenda

- Crafting a Curriculum Vita
  - The structure of a vita
  - Formatting the vita
  - Developing the vita portfolio (cover letter, statement of teaching philosophy and research proposal)

## The Curriculum Vita vs Resume



### Curriculum Vita

- Does not require an "Objective" section
- Length is not a constraint
- Should include everything you have accomplished
- Statement of "Objective" is typically a requirement
- Should be no longer than two pages, ~~especially at first~~
- Presents a list of accomplishments focused on the position in question

*Life story*

### Resume

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## Critiquing an Ineffective Structure

Small group activity

## The Structure of a Vita



- Personal information
- Education
- Research experience
- Teaching experience
- Other employment experience
- Professional activities
- Honors and awards
- Publications and presentations
- Proposals submitted
- References

How much more do we need here?

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## Formatting the Vita



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# Critiquing an Ineffective Format

Small group activity

## Statement of Teaching Philosophy



- Plays a key role in hiring criteria for four-year institutions
- More and more required by research-intensive institutions as well.
- Provides a summary of your experiences, motivation, and preparation for a teaching career

## Contents of the Vita Portfolio



- Vita
- Statement of teaching philosophy
- Cover letter
- Research proposals

## Statement of Teaching Philosophy: Structure



- Describe preferred delivery methods (advantages and disadvantages)
  - Instructor-centered (lectures, demonstrations, visual aids)
  - Learner-centered (student presentations, group projects/discussions, case studies, Socratic method)
- Describe your point of view on
  - Examinations
  - Homework
  - Using graded web-based assignments
- List courses you are prepared to teach (standard undergraduate and graduate courses)
- Identify new courses you could teach
  - Possible team teaching
  - Special topics courses

*use of technology  
- customizing the lecture*

## The Cover Letter



Purpose

Structure

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## Research Proposal(s): Structure



- Required content
  - Goal of the project (a good problem trumps small technical efforts)
  - Background
  - Significance of project
  - Experimental design and methods
  - References
- Optional content
  - Instrumentation and equipment needs
  - Approximate start-up budget and size of your group
  - Other sources of funding
  - Proposed journal for publication of results ~~and thoughts on where you would publish~~

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## Research Proposal(s): Purpose



- Demonstrate your creativity and independence as an investigator
  - Can build on your doctoral or post-doctoral work
  - Differentiate your ideas from those of your advisor
- Seek feedback about alternative approaches
- Send proposals to your references as basis for their comments in their letters of recommendation

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*multiple phases -  
short & long term  
sure win & more risky*

## Research Proposal(s): Format



- Write for a diverse audience (three to four topics)
- Prepare in three formats
  - Written, 5 to 15 pages with references
  - Written, 3 pages with one-page summary
  - Oral: Faculty seminar
- Provide enough background to be compelling (demonstrate a sense of urgency, and suggest why you are uniquely positioned to do this project)
- Target project to the level of students who will be involved (graduate vs. undergraduate)

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## Research Proposals for PUIs

- Project needs to promise short-term success
  - Undergraduate students typically have limited time for research
  - Six to eight hours per week, often for only a semester or two
- Stay away from really "hot" fields
- Consider seeking collaborators at neighboring institutions

Getting Started on My Vita  
Pairs application activity

## Research Proposals for RI Institutions

- Identify "cutting edge" research
- Seek fit with current faculty efforts
  - Complement department's current research efforts
  - Propose new areas of investigation for the department
  - Identify collaborators within and outside of the department
  - Describe use of current instrumentation and facilities
- Identify start-up funding requirements

## A Career in Academe: Agenda

- Making Myself More Competitive



## What Counts in Academe?

	A.A.	B.A./B.S.	Ph.D.
Teaching experience	2.89	2.52	1.73
Research proposals	1.12	2.18	2.67
Publications (quality and quantity)	1.32	2.34	2.94
Reputation of advisor(s)	1.17	1.94	2.61
Prestige of Ph.D. institution	1.54	2.14	2.37
Campus interview	2.92	2.96	2.91

## Tactic 2: Do a Post-Doc

- About half of chemistry Ph.D.s do a post-doc.
- Post-docs are typically required for a position at a doctoral research institution
  - Broadens your expertise and interests
  - Allows you time to develop independent research proposals
- A post-doc also makes you more competitive for a position in a top four-year college.

## Tactic 1: Gain Teaching Experience

- Get a position as a teaching assistant
  - Recitation vs. laboratory
  - Construct exam questions/quizzes
  - Conduct problem solving sessions
- Offer to teach a regular class lecture or an evening class (consider a nearby two- or four-year college.)

## Reasons Why Chemists Do Post-Docs

Training outside Ph.D. field	27%
Post-doc expected in field	22%
Additional training in Ph.D. field	22%
Work with a particular person or in a particular place	17%
Other employment not available	11%
Other	2%

## Types of Post-Docs



- "Traditional"
  - Research done in sub-field or aligned field
  - In a chemistry department at R1 institution
    - At a medical school
- Teaching (research coupled with major teaching responsibilities)
- Government (major federal research labs)
- Industry (pharma and major chemical companies)

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## Finding a Teaching Post-Docs



- Identify potential schools
  - Start looking **12+** months before graduation
  - Check job postings and ads
  - Attend cleaningshouses (ACS)
  - Network
- Research the advisor
  - Length of appointment
  - Reputation as a mentor
  - Support given to post-docs
  - Placement record on post-docs
- Open the door
  - Personal contact from your Ph.D. advisor
  - Write the letter
  - Get your own funding

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## What a Post-Doc Does



- Design and conduct experiments (demonstrate independence)
- Start new projects
- Manage the lab
- Share expertise with group members
- Mentor graduate and undergraduate students

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## Tips on Choosing a Post-Doc



- Strike balance between staying in your general area of expertise and broadening your skill base
- Find one that allows you to demonstrate your independence
- Pick an advisor who is known as a mentor
- Make sure you will have the opportunity to publish based on your work.

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## Writing Your Letter of Application

- Remember that all professors at R1 universities get stacks of applications (and famous ones get even more)
- Your letter should:
  - Demonstrate your familiarity with their work
  - Identify areas of work that interest you
  - Suggest ideas for extensions of their work

*Examples?*

## A Career in Academic: Agenda

- Getting Hired for an Academic Position
  - Finding an opening
  - The campus visit
  - The offer

## Making Myself More Competitive

Individual to pairs application activity

## Finding an Academic Position

- Help-wanted ads
  - C&EN
  - Chronicle of Higher Education
  - Science
- Networking with
  - Your advisors (undergrad, grad, post-doc)
  - Mentors
  - Research group alumni

## Assessing a Potential Opening

- Identify institutions of interest (via websites and conversations with current faculty, postdocs, students)
- Determine requirements for a faculty position:
  - Normal teaching load
  - Class size
  - Research facilities
  - Start-up money
  - Expectations for tenure (teaching research, service)
  - Library facilities
  - Available instrumentation
- Assess your fit with the department's value system

## Presenting Your Research Proposal

- Commonly done after the seminar
- Include "preface points" in your seminar
- Typically a one-hour presentation
  - Expect many interruptions
  - Less formal style than seminar
  - Use PowerPoint format
  - Try to deliver your entire proposal
- Tip: Capture the essence of your proposal using a key phrase in the introduction

## The Campus Visit

- Individual and group interviews
- The research presentation
- The research proposal presentation
- Teaching a sample class
- Exit interviews and after the visit

Note: I need to fill out this section.

*2 days?*

## The Offer

## Finding an Academic Job: Summary



- Identify the type of institution that best fits your research and teaching load expectations
- Investigate your "fit" with the institutions
- Prepare and seek feedback on your
  - CV
  - Statement of teaching philosophy
  - Research proposals
- Consider
  - The availability of students to carry out your research
  - Instrumentation requirements
- Be prepared to give an oral presentation of your proposal(s)

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## A Career in Academe: Agenda



- Being Successful: Your First Year on the Job

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## Difficult Decisions

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## Being Successful in Academia



There's not much in PFLAGS new in this section that's not somewhere in the previous sections. Is there something else to add?

*first 6 years -  
to get tenure ?*

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## A Career in Academe: Review

- The Academic Career Pathway
- Getting Hired for an Academic Position
- Making Myself More Competitive
- Crafting a Curriculum Vita
- Being Successful: Your First Year on the Job

## What Career Services Are Available from ACS

- AEI
- PFF
- Postdoc to Faculty

*include OPLS*