

Academic Career Paths

adapted from slides by
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PSE 797D and CE797B:

Scientific & Engineering Management

Why pursue an academic career?

If you ask a faculty member if he or she is satisfied with his or her job,

“he will first give you a catalog of woes and then say he can’t think of anything else he would rather do.”

- “Overall job satisfaction” rated “very satisfactory” or “satisfactory” by 76% of academics
- Job aspect with the highest rating was “autonomy and independence”

Reasons to Chose an Academic Career

- **Stimulating colleagues and environment**
- **Opportunity for life-long learning**
- **Flexibility and autonomy of academic lifestyle**
- Love of your discipline
- Love of research
- Interest in working with students
- Interest in teaching
- Satisfaction from having an impact on students' lives
- Freedom to pursue personal intellectual interests
- Financial rewards and job security

The Other Side of the Coin!

- Critical and challenging culture
- Politics within the department, institution, or field
- Longer working hours and no real “time off”
 - Many academics find it difficult to “leave work at work”
 - Need to manage students and research group even during vacations, sabbaticals, etc.
 - Personally invested in students and research program
- Pressure of multiple job functions
 - Need to build skills in prioritizing and multi-tasking
- Stress related to fundraising
- Stress related to managing research group
- Timeline pressure, particularly early in career

Before the Job Search

- Build relationships with faculty mentors (not just your immediate advisor)
- Network at meetings and conferences
- Present at meetings and conferences
- Publish your work !!

Identifying the Job You Want

- **Exploring**
 - deciding what you want
 - researching what is out there
- **Searching**
 - setting the stage
 - preparing your materials
 - applying for positions
- **Finding**
 - start-up packages
 - negotiations

Deciding What You Want

- Priority of research & teaching
- Size of department
- School with distinctive personality
- Highly selective or broad community service
- Academic or active industry focus
- Department where you will be the first of your gender, social, or ethnic background
- Department demographics
- Department poised for large turnover or stable
- Type of appointment
- Location and setting
- What else??

Researching Schools

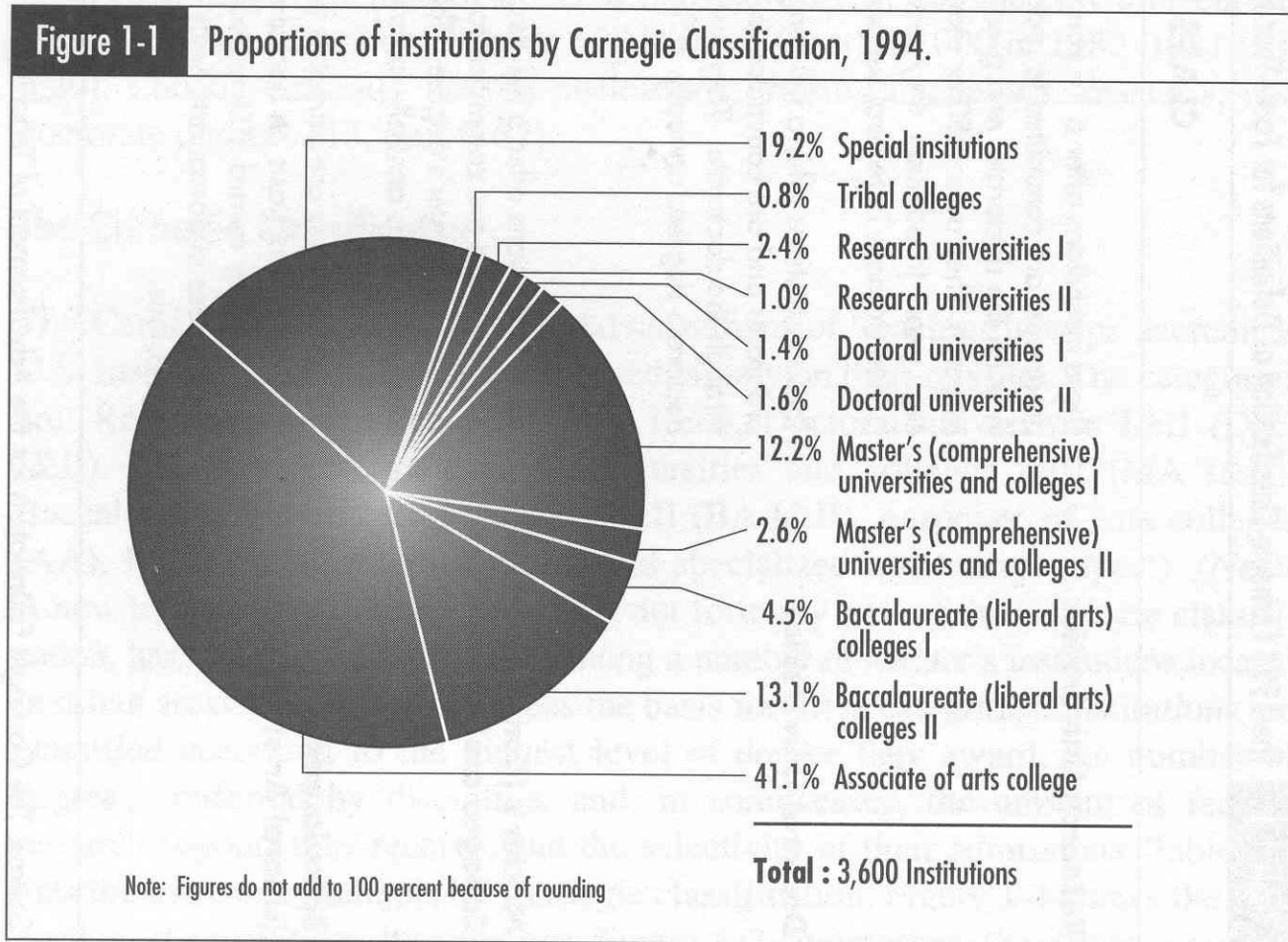
- Carnegie Classification

Table 1.1 The 1994 Carnegie Classification of Definitions for Four-Year Institutions

	CLASS I	CLASS II
Research Universities	These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctorate degrees each year. In addition, they receive annually \$40 million or more in federal support.	These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctorate degrees each year. In addition, they receive annually between \$15.5 million and \$40 million in federal support.
Doctoral Universities	These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 40 doctorate degrees annually in five or more disciplines.	These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award annually at least 10 doctorate degrees—in three or more disciplines—or 20 or more doctorate degrees in one or more disciplines.
Master's (Comprehensive) Colleges and Universities	These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 40 or more master's degrees annually in three or more disciplines.	These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 20 or more master's degrees annually in three or more disciplines.
Baccalaureate (Liberal Arts) Colleges	These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award 40% or more of their baccalaureate degrees in liberal arts fields and are restrictive in admissions.	These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degree programs. They award fewer than 40% of their baccalaureate degrees in liberal arts fields or are less restrictive in admissions.

Researching Schools

- School Distribution



Source: The Carnegie Foundation for the Advancement of Teaching

Researching Schools

- School's Primary Focus

Table 1.3 Impact of Teaching and Research on Tenure Decisions at Various Types of Colleges and Universities

Percentage of faculty who answered "very important" to the following questions, by type of institution:

QUESTIONS	RES. I&II	DOC. I&II	MASTER'S I&II	L.A. I&II
How important is the number of publications for granting tenure in your department?	56	55	30	8
How important are research grants received by the scholar for granting tenure in your department?	40	35	19	9
How important are student evaluations of courses taught in granting tenure in your department?	10	9	37	45
How important are observations of teaching by colleagues and/or administrators for granting tenure in your department?	4	6	20	29
How important are recommendations from current or former students for granting tenure in your department?	3	6	13	30

Source: E. L. Boyer, *Scholarship Reconsidered: Priorities of the Professoriate*. Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching, 1990, Appendix A—National Survey of Faculty, 1989. Reprinted with permission.

Setting the Stage

- Find positions that are available
 - Let your advisor and faculty mentors know
 - Watch for ads, online and in print
 - Conference and networking activities
 - Participate in “Meet the Candidate” sessions at national conferences
 - Time applications to coordinate with major conferences in your field
- Time frame for applications
 - August-October – announcement
 - Jan-April – interview
 - April-June – negotiations & decision
 - Varies somewhat by field

What are they looking for?

- General “fit”:
 - overall promise
 - general teaching ability
 - ability to do research/scholarship
 - compatibility w/ department
 - potential for external funding
- Specific “fit”:
 - research focus
 - ability to teach courses needing staffing

Example Announcements

Florida Atlantic University, Department of Civil Engineering, Geoenvironmental Engineering, Assistant Professor

The Department of Civil Engineering (<http://www.civil.fau.edu>) welcomes applications for a **nine-month tenure-track Assistant Professor** position in the **general area** of water resources/environmental/geoenvironmental engineering **with an emphasis on** (but not limited to) modeling of ground/surface water interactions and pollutant fate and transport. Candidates must have an **earned doctorate degree** in Civil or Environmental Engineering, **good communication skills**, a **strong commitment to excellence in teaching at both undergraduate and graduate levels**, and **the ability to initiate and maintain a funded research program** in their area of specialization. Preference will be given to applicants with post-doctoral or industry experience. The successful candidate will be **expected to obtain Florida PE licensing within the first three years** of his/her employment. The undergraduate Civil Engineering program is accredited by the Engineering Accreditation Commission of ABET (EAC/ABET).

Interested applicants must submit: (a) a **letter of application**, (b) **statement of research interests and teaching philosophy**, (c) a **complete curriculum vitae**, and (d) **the names, addresses, telephone numbers and e-mail addresses of four references** to: Dr. P.D. Scarlatos, ...

Example Announcements

GEORGIA INSTITUTE OF TECHNOLOGY *The School of Civil and Environmental Engineering* invites applications for tenure-track faculty positions, with starting date August 2004. We seek **outstanding applicants in all areas**, but are particularly interested in adding to our existing strengths in Geosystems Engineering. Candidates in **GEOTECHNICAL ENGINEERING** will complement current education and research activities which include site characterization, soil and rock behavior, hazard mitigation, constitutive modeling, fracture mechanics, and seismic response. **Individuals with added interests in bioengineering, nanotechnology, energy, sensors, infrastructure, and geoenvironmental are welcomed.** The current program is described at: <http://www.ce.gatech.edu/~geosys>

Candidates must hold a Doctoral degree at the time of appointment in Civil Engineering, or a related field. They must be **capable of teaching undergraduate and graduate courses** and show a **clear potential for creative independent research leading to a strong extramurally funded research program and national recognition.** Screening of applicants will begin immediately and will continue until the positions are filled. Positions at **Assistant, Associate, and Full Professor** will be considered, depending on the qualifications of the candidate. Applicants should submit a **curriculum vitae**, a **one-page statement of teaching experience & teaching interests**, **research objectives**, and the **names of four references** to...

Applications will be received until April 15, 2004.

The Academic Application

- Cover letter:
 - **Customize** for different departments, different fields, specified needs listed in ads
 - Give an overview of your application package
 - Introduction – yourself the position
 - 3-4 paragraphs – research/teaching past, current, and future
 - Summary and thanks
 - If your training is in a field other than the one you are applying to, address this in the letter
 - Have friends and mentors review
 - Maximum length two pages

Polymers Division, NIST
Gaithersburg, MD 20899-8542
January 2, 2002

Professor Alan J. Lesser
Chairman, Faculty Search Committee
Department of Polymer Science and Engineering
Conte Research Center, University of Massachusetts
Amherst, MA 01003

Dear Professor Lesser:

Based on my background in experimental mechanics and mechanical modeling, I feel that I have the skills and interests to fill the open faculty position in the Department of Polymer Science and Engineering at the University of Massachusetts. As indicated in my curriculum vitae and my research proposal, I am interested in developing and using novel techniques to investigate mechanical properties and their interplay with surface and interfacial properties. Inherent in this investigation is the linking of materials properties at the nanoscale with those measured at the micro- and macroscopic length scales. This overlying theme allows me to investigate a variety of materials classes from soft materials, such as biological materials, to structural polymers.

I currently hold a National Research Council Postdoctoral Associateship at the National Institute of Standards and Technology. In this position, I work with Dr. Eric Amis, Division Chief, and Dr. Alamgir Karim, Group Leader, in the Polymer Division's Multivariant Measurements Group, which is leading the use of combinatorial methods for polymer characterization. Specifically, I develop and use new techniques for the combinatorial characterization of bulk and interfacial mechanical properties such as polymer adhesion, fracture, and rheology. This research allows me to further explore the areas of polymer science that were also the focus of my Ph.D. dissertation, completed under the guidance of Dr. Kenneth Shull at Northwestern University.

An important reason for applying for this faculty position is my desire to teach and mentor students at both the undergraduate and graduate levels. My interest in and philosophies of teaching were seeded during my work as a teaching assistant for introductory polymer and materials science courses. Additionally, at both Northwestern University and NIST, I have had the enjoyable opportunity of guiding undergraduate and high school students in long term senior level projects. These experiences will be invaluable in leading a research group of graduate and undergraduate students in the investigation of the fundamental mechanisms in polymer adhesion, nanomechanical properties, and polymer blends. As detailed in my research proposal, my group will use a combination of established and new experimental techniques to provide new insights into molecular physics and to extend the boundaries of materials science.

I expect to complete my postdoctoral position in the Summer of 2002. I have enclosed a copy of my curriculum vitae, a statement of teaching philosophy, and my research proposal. Thank you for your time and consideration, and I look forward to hearing from you in the near future.

Sincerely,

Alfred J. Crosby

The Academic Application

- Curriculum Vitae
 - Organized and attractive
 - Clearly labeled categories
 - Large font
 - Reformat/rearrange to match announcement, if necessary
 - Proofread, proofread, proofread

Research Statement

- Length varies greatly by field
 - Typically 3-10 pages
 - Obtain samples from friends if possible
 - Customize for different fields and stated needs in ad
- Conceptually similar to mini-grant, so...use figures, overview/abstract, etc.
- Highlight research accomplishments in opening
- Synthesize past accomplishments to build foundation/ability for future research
- Present 2-4 new research ideas
- May want to include potential funding sources
- Be aware of formatting and professionalism

Teaching Statement

- 1-2 pages in length
- Briefly state teaching philosophy
- Summarize past teaching experience
 - Student teaching
 - TA experience
 - Advising of undergrad/grad students
 - Outreach activities
- List courses you would want to teach
 - Core undergraduate and graduate
 - Electives you wish to develop
- **If applying to different disciplines, CUSTOMIZE FOR EACH !!**

Recommendation Letters

- Can be most important part of application
- Ph.D. and Post. Doc. Advisor(s) are typically letter-writers
 - Can send a “red flag” to committees if they do not have letters from your advisors
- Other options are thesis committee members, department head, faculty with whom you have had classes
- Let letter-writers know who else is writing and facilitate communication
- Provide with a copy of your CV and application materials

The Interview

- Typically 1-2 days (20+ hours)...so be rested
 - Avoid caffeine or alcohol during meals if they give you problems
 - Don't be afraid to take a short break or ask to turn in early the night before your talk
- Typical format
 - Meetings with individual faculty, 30-45 minutes each
 - Meeting with department head
 - (Maybe) Meeting with dean
 - Seminar
 - (Maybe) Future plans seminar or “research talk”
 - (Maybe) Facilities tour
 - Meals, meals, meals

Meetings with Faculty

- Be enthusiastic!
- Show interest in the institution and have a that you can ask faculty during individual meeting
 - “How do you find the environment in the department? On campus?”
 - “How are the facilities for xxx?”
 - “How do you find the quality of graduate students?”
 - “How are graduate students matched with advisors?”
 - “How is the environment for young faculty?”
 - “How many courses do you teach?”
 - “How are the interactions with xxx department?”
 - “How do you enjoy living in the area?”
 - **Ask several faculty the same questions to get different perspectives**
- Ask faculty about their own research
 - Mention potential collaborations if you see them, but don't force

More on Meetings with Faculty

- Know the answers to questions faculty may ask you
 - Be prepared to give an overview of your research interests
 - “What are you looking for in a department?”
 - “What is your ideal group size?”
 - “What types of facilities do you need for your work?”
 - “What agencies fund your type of research?”
 - “What classes would you like to teach?”
 - “How does your work relate to xxx’s?”
 - “Where do you see your research going in the next 5-10 years?”
- Practice responses to awkward questions
 - Marital status
 - Plans for having children
 - Personal questions about family responsibilities

Other Interview Advice

- Prepare for meeting with department head
 - Prepare a list of equipment and costs needed for start-up
 - If there is some flexibility, mention this
 - Review this list with a mentor before your interviews
 - Can also ask department head and dean about directions in the dept and college, new initiatives and areas of focus, etc.
- Do your homework before visit
 - Browse department website
 - Know department strengths
- Be aware of your schedule for the visit
 - Clarify any points of confusion before the visit or at the first opportunity
 - Format for seminar and research talk important
- Bring extra copies of cv, packet, key publications
- Practice seminar and research talk
 - Be confident
 - Demonstrate broad impact w/ technical depth
 - Practice, practice, practice

The Negotiation

- Get the initial offer in writing
- Negotiable items: salary, office and lab space, teaching schedule, tenure schedule, admin. support
- Start-up funds for equipment, students, materials, supplies, travel, summer salary
- Phrase requests in line with department and university mission
- Some negotiation is expected, but do not get hung up on minor points