Staying current in a generalist environment: Resources for teaching

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Why?
Teaching at an undergraduate institution

- More courses per year
- More types of courses
- High/Low frequency
- Fewer options for new/advanced offerings
- Reduced TA support
- More faculty-student interaction
- Teaching vs. Research vs. Service balance
Teaching at Smith College

• 2-2 courses per year
• More types of courses
• High/Low frequency
• Fewer options for new/advanced offerings
• Reduced TA support
• More faculty-student interaction
• Teaching vs. Research vs. Service balance

Example:

I taught 9 different undergrad courses (7 pre-tenure)
CS1/2 vs. Algorithms
Robotics; Bio-informatics
Student TA help for intro courses
Office hours

Pre-tenure: mainly Teaching and Research
Post: all. E.g. Dept. Chair
Teaching at an undergraduate institution

- More courses per year
  - Good load: 2-2 (first year: 1-2)
  - Not unusual: 4-4
- More types of courses
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Course preparation takes a lot of your time!!
Teaching at an undergraduate institution

- More courses per year
- More types of courses
  - I have taught 9-11 different undergraduate courses (3 in grad school, 7 in the 6 year pre-tenure period, 2 new afterwards)
  - Most of them do not relate to research area
- High/Low frequency
- Fewer options for new/advanced offerings
- Reduced TA support
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May have to teach courses in areas in which you are not an expert
Teaching at an undergraduate institution

- More courses per year
- More types of courses
- High/Low frequency courses:
  - High: lower level and core courses (CS1/CS2, service courses)
  - Low: advanced courses and seminars may be offered every 2-3 years (and shared with colleagues)
    - By the time you get to teach the same advanced topic again, the old syllabus may already be half-obsolete: may need new hardware (old robots no longer supported), the software has moved up to a new version; new topics must be included (e.g. web-centered programming),
  - Need to stay current, to become current fast (sometimes you are just a few lectures ahead of your students)
- Reduced TA support
- More faculty-student interaction
- Teaching vs. Research vs. Service balance

Low frequency course preparation may be very time consuming ...
One may get bored after a while, if it wasn’t that our field moves so fast ...
Teaching at an undergraduate institution

- Fewer options for new/advanced offerings

- Curriculum is more rigid (small department, everybody teaches core courses, everybody competes for more advanced courses and seminars)
- Completely new topics (e.g. related to a new interest or to one’s area of research) cannot always be quickly and easily added to the curriculum (but ultimately they do!!)

May be harder to integrate teaching and research ...
But not impossible!
Teaching at an undergraduate institution

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You spend more time with grading, exams, help sessions

- Reduced TA support
Teaching at an undergraduate institution

- More faculty-student interaction
  - Extra office hours, less time to stay current
  - Independent studies, research opportunities, senior projects
Teaching at an undergraduate institution

- Teaching vs. Research vs. Service balance:
  - Ask what the tenure expectations are
- Typical pre-tenure: teaching + research
- Post-tenure: + service (e.g. rotational department chair, college-wide committees)

During the 5-6 year pre-tenure period:
- Lots of new courses to teach
- Lots of “routine” teaching topics to stay current with
- Time for research is severely limited, but scholarly activities must go on
- Staying current in research: specific challenges
Resources
Resources for Teaching at an undergraduate institution

• You:
  • your interests
  • your research
• Colleagues (and former)
• Publishers, Web
• Students
• Your school: workshops, funding
• Conferences
• Sabbaticals
• Funding agencies
Your personal and scholarly interests

• Teaching what you are passionate about takes less time to prepare – you do it anyway
• Build your interests into every class you teach (what you know or what you want to learn):
  • A Computer Literacy assignment about Word Processing may become a pretext for including a paragraph from a favorite author
  • A programming assignment in Python may build a spam filter
  • Always wanted to play with Legos but never had time to? Teach a Robotics class. Bring Mindstorms robots into CS1.
  • Mathematically-oriented research? Choose to teach the Theory classes. Propose a new course. I teach Computational Geometry.
Colleagues (and former)

• Take time to meet and talk to your colleagues, not just email

• **Ask** for course materials, to use as models when you teach a class for the first time

• Maintain a network of colleagues from other schools and exchange course ideas, syllabi, assignments, textbook suggestions
Publishers and the Web

• Always ask for several examination copies before deciding upon a textbook
• Visit publisher booths at conferences
• Be “library” liaison, order books for department and school library
• Consult and build upon web resources:
  • Similar courses at other universities
  • On-line documentation
Students

Especially suitable for teachers at small colleges, where courses have small number of students:

• Keep creative solutions from hwks and build them into future courses
• Engage your students in preparing materials for future offerings
Student Research

- Independent studies
- Senior projects and Honors theses
- School specific research opportunities for students.
- NSF REU summer projects

Best student projects inform both scholarship and teaching
Your school

• Ask about support from your school
  • Funding for student assistant during new course preparation
  • Conference and workshop participation
  • Summer support
Conferences and Workshops

• SIGCSE
• Computing at Small Colleges (CCSCNE and related)
• Especially: sign up for the Workshops
Sabbaticals

• Visit other places: you get new ideas (for both teaching and research)
• Try something new (change your field, or specific research project, at least once, or once in a while, or several times)
• Work with a new colleague (design a new course, start a new project, write a grant proposal)
Funding agencies

• NSF CCLI