Teaching Your First Course

Jodi Tims
Northeastern University
Susan H. Rodger
Duke University

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Jodi Tims (she/her)

- My path
  - BS, Math - UPJ
  - MS, PhD, Asst/Assoc Professor - Pitt
  - Associate Professor - Saint Francis University
  - Associate/Full Professor and Chair - Baldwin Wallace University
  - Professor of the Practice and Associate Dean of Network Programs - Northeastern University

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ACM-NDC Study

SIGCSE
Special Interest Group
Computer Science Education

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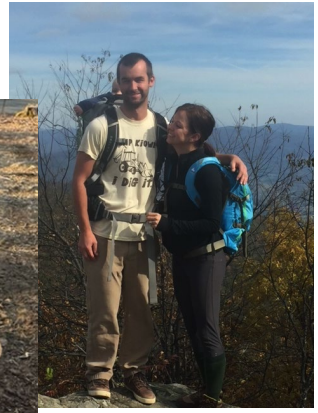
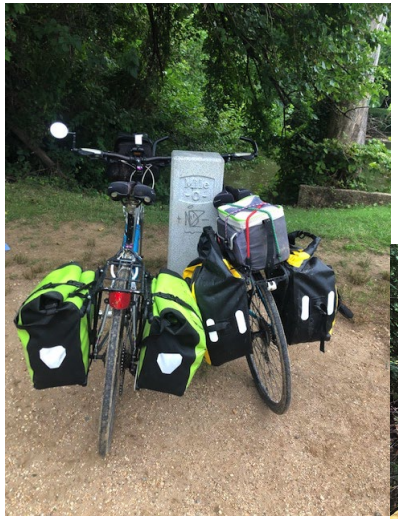
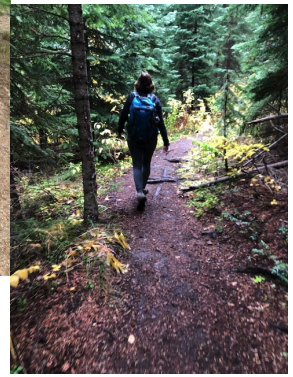
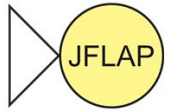
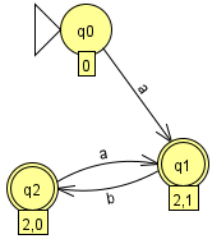




Susan Rodger

- My path
  - BS Math/CS NCSU
  - MS, PhD Purdue University
  - Rensselaer Poly. Inst. – Assistant Professor
  - Duke University – Professor of the Practice (Pop)
    - (Assistant Pop, Associate Pop, Pop)
  - Research – CS Education, Visualization, Tools learning CS, integrating computing into K12
  - Talk about my autism: https://bit.ly/rodgersigcse23





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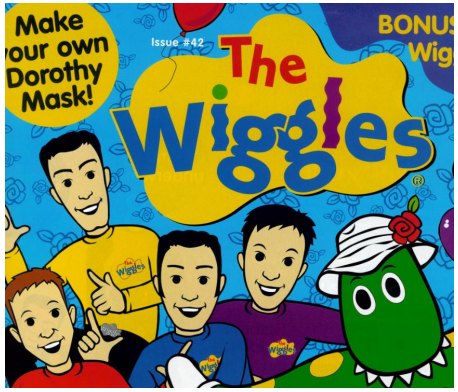
Susan Rodger

- Fun - run/swim/hike, baking, cats, writing Wikipedia pages



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Outline

- Transitioning to faculty teaching
- Finding resources
- Creating a syllabus
- Designing lecture
- Designing assignments
- Designing homework and exams
- Soliciting feedback
- Responding to student challenges
- Dealing with grading and plagiarism
- Recruiting TAs
- Managing TAs
- Planning your first day
- Preparing for faculty teaching

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Your Experience

How many of you are close to finishing your degree?

How many of you have been a Teaching Assistant?

How many of you have taught your own course (been the instructor of record)?

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Transitioning to faculty teaching

- Decide on a pedagogy (lecture, active learning, flipped)
- Plan the flow of the course and course policies
  - Will there be exams? How many? In-class vs. take home
  - Number of assignments and quizzes along with dates due/given (aim for a consistent schedule)
  - Will late submissions be allowed? Will resubmissions be permitted?
- Develop curriculum
  - Determine learning objectives: conceptual material and skills
  - Select textbook(s) and other resources to use
  - Create course materials (lectures, in-class activities, assignments, quizzes, exams)
- Manage teaching assistants and graders
  - Develop student engagement plan (office hours, lab assistance, tutoring)
  - Set criteria and deadlines for grading and oversee quality
- Handle administrative tasks
  - Order books
  - Manage student enrollment
  - Report struggling students to college
  - Determine final grades

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Finding resources

- Look for courses/syllabi at similar institutions
  - Email the instructor for anything they are willing to share
- Post on SIGCSE to request materials
  - SIGCSE-members@listserv.acm.org
- Look for a book that covers the course content
  - Publishers will often send you the book and slides
- Look for “peer-instruction” slides
  - peerinstruction4cs.org/
- Look for individual assignments to integrate
  - nifty.stanford.edu
  - engage-csedu.org
  - acm.org/education/CS2013-final-report.pdf
- Use tools to check for cheating on programming assignments
  - https://theory.stanford.edu/~aiken/moss/

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Creating a syllabus

- Copy someone's syllabus
  - Find required statements for accommodations, late policy, sick form, academic resource center, counseling center, cheating, etc.
  - Large course? Use google forms to collect responses:
    - requesting extension, reschedule an exam, regrade request, etc
- Map out everything
  - List of topics, exam dates, list of assignments and due dates, …
- Copy someone's course materials
  - You are not the first person to teach this content!
    - You can make small changes to catch or reduce cheating
  - For *later* courses, use "Backward Course Design" (link)
- Create a reading list for a graduate course
  - Pull from courses you took and articles you reference

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Designing Lecture

- How to engage your students
  - Don't put all your notes on your slides
    - Make a slide, then copy it and add answers to show in class
    - Delete slides with answers before putting up .pdf of lecture slides
    - Put up full notes after class, remove at end of semester
  - Ask questions to make them think, wait for an answer
    - It is tempting to just say the answer
  - Group activities - clickers, google forms
    - Go over collective answer
- Communicating what you value (e.g. class participation)
- Do different examples then are in the book
- Review previous topic, remind where the course is going

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Make lecture fun! sorting

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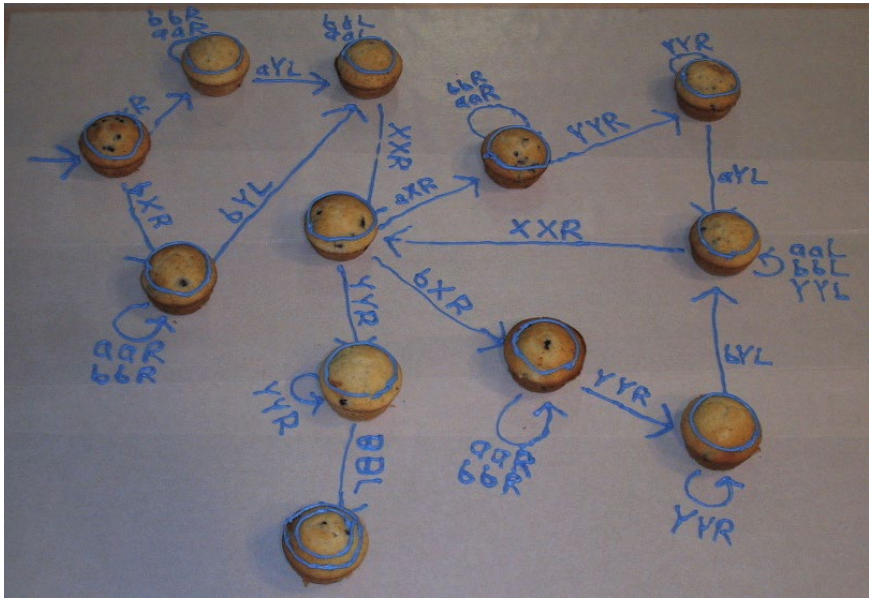
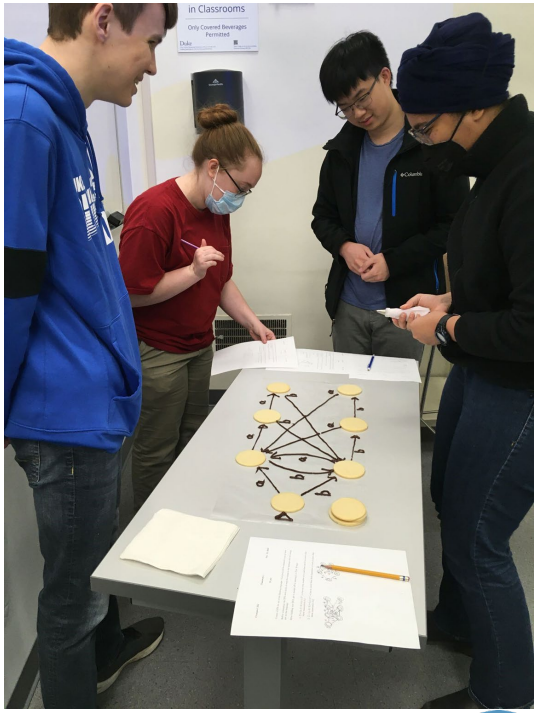
Make Lecture fun - automata theory



Turing machine out of blueberry muffins



Students build DFA with cookies and icing

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Designing assignments

- Consider low stakes, short assignments/quizzes and higher stakes, longer assignments with checkpoints
- Design questions that help students learn the material
  - Focus on fundamental material and common misunderstandings
  - Create questions that ask students to stretch, but not too much
  - Design for good students, not most experienced students
  - Consider challenge problems
  - Create questions that work for different learning styles
- Do the assignment yourself, have a TA do the assignment
  - Is it to much? Can you give them parts of it?
- Create assignments that are easy to grade
- Coordinate deadlines in common classes

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Designing exams

- Be aware of time
  - Students will take longer than you to answer questions
  - Consider how long it will take to grade each question
- Ask questions in manner similar to assignment questions
- Break complex questions into parts
- Create questions at different difficulty levels
- Make sure the questions/instructions are clear
- Have someone else take the exam prior to test day
- You can adjust grades if the overall average is lower than anticipated

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Soliciting feedback

- Strategize a way to get valuable information from your teaching evaluations
  - You may prefer to have a TA, colleague, or friend summarize them
  - Don’t dismiss them - they can be biased, but there is usually some truth to be gleaned that can improve your effectiveness
- Be prepared to speak to concerns raised and feedback given
  - Students want to know their feedback is heard
- Consider providing a process for anonymous feedback throughout the course
- Take notes *during* class about feedback and questions
- Have a colleague sit in on your class and provide informal feedback

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Responding to student challenges

- Understand reporting requirements
  - First year and athlete progress reports
  - Unsatisfactory progress reports anytime
  - Honor code violations
- Learn about on-campus resources
  - Well-being, financial, and academic resources
- Understand required accommodations
  - Reach out to students with accommodations to establish protocol
  - Create a plan for accommodations and set them up early
- Be aware of progress
  - Keep overall grade spreadsheet and check every few weeks
  - Keep attendance record informally (if size of class allows)
- Reach out to struggling students early
  - Frame outreach as connecting them to resources to help them succeed
  - Provide a seamless way to request extensions

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Dealing with grading and plagiarism

- Create clear articulation of what counts as cheating
- Understand student conduct policy
  - Report students – first time offense could be lighter
- Collect evidence – need a strong case
  - With strong evidence they will likely admit it
  - May have to follow through with student court
- ChatGPT complicates things…
  - Compare solutions to ChatGPT solutions
- Ask them questions about their work or give them a similar problem to solve

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Recruiting TAs

- Understand how TA placements are determined in your department
- Get student recommendations from colleagues
  - Ask about student's grasp of material, level of responsibility, and personality
- Reach out to recommended students
- Make sure your TA pool is diverse
  - Students from marginalized populations may be less likely to apply and need encouragement to do so

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Managing TAs

- Find or create TA training materials
- Convey the importance of meeting deadlines
- Convey the importance of respectful student interactions
- Design a plan for office hours
  - Ask TAs to fit into that plan and only modify plan very selectively
- Design and share grading deadlines before semester starts
  - Allow more time or assign less work around midterms and breaks
  - Consider scheduling grading sessions
  - Schedule time for you to finish unfinished grading
- Solicit feedback
  - Check in weekly with TAs about attendance and common questions
  - Solicit student feedback with anonymous survey or other mechanism

Planning your first day

- Practice speaking before, with tongue twisters
- Check out the room before
- Greet the class, small talk, smile
- Bring them closer to you, "can't sit in last 6 rows"
- Set expectations - "phone's off", "start and end on time"
- Acknowledge students - ask them to state their name
- Manage show-offy students - "let's chat later on that"
- Ok to say "don't know, will get back to you"
- What will you wear? Comfortable? No small stripes!

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Let's say a tongue twister!

Betty Botter bought some butter

But she said the butter’s bitter

If I put it in my batter, it will make my batter bitter

But a bit of better butter will make my batter better

So ‘twas better Betty Botter bought a bit of better butter

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Preparing for faculty teaching

- Sit in on or TA courses that you might eventually teach
- Teach a lecture or co-teach a course
  - Consider teaching at local institutions
- Teach in a summer outreach program or winter terms
- Propose revisions to a course
- Seek out training at a Teaching and Learning Center or the Education Department/Program at your university
- Postdoc jobs with teaching or visiting faculty positions
  - Are you on the SIGCSE listserv?

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Questions?

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