Computer Science (CSCI) 698
Practicum in Teaching Computer Science

(some slides from Laurent Itti
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Goal

Practical principles for the long-term development of effective teaching in Computer Science. Intended for teaching assistants for classes offered by the Computer Science department.

People

Instructor: Andrew Goodney
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TA: TBD

Office hours: TBD

Details

- Practicum for TAs in Computer Science
- Enrollment limited to students assigned a TAship on a course offered by the Computer Science department
- Practical aspect of class is serving as a teaching assistant
- One (50-minute) class meeting once a week

Learning objectives

- Familiarity with the basic principles of lesson plan design and execution
- Techniques for conducting effective discussions
- Techniques for effective classroom speaking
- Knowledge of some technologies and tools in common use in Computer Science teaching
- Teaching practice

Grading

- Credit/No Credit
- A students = first time taking CSCI 698
- B students = second time taking CSCI 698
- Attendance and assignment requirements are different for A/B student cohorts.

Course requirements

- To obtain credit students must:
  - Attend at least 10/14 (A-cohort) of all designated class meetings (5/7 for B-cohort)
  - Complete every assignment and participate fully in class (Homework assignments are not graded, but are peer reviewed)
  - Contribute peer reviews

Assignment 1

- Aimed at helping you clearly articulate your
  - roles
  - duties
  - responsibilities
  - goals
- as a TA, both officially (as you interact with students) and unofficially (as you interact with other TAs, the professor, etc).
- Main purposes:
  - transparency
  - clearly setting expectations

Other Assignments

2. Write a teaching statement
3. Create a written assignment for a CS course
4. Create a programming assignment for a CS course
5. Design questions for end-of-semester student survey

Course Schedule

Week	Date	Topic	Attendance A/B?	Assignment Due (Friday)
1	1/8/24	Introduction, Roles/Responsibilities, Planning and Organization	A+B	
2	1/15/24	No Class - MLK		
3	1/22/24	How the brain learns, teaching philosophies, teaching statements	A	One page summary of TA responsibilities (A+B)
4	1/29/24	Teaching Techniques, Speaking Tutorial, CS Ed Research	A	
5	2/5/24	PeCK, POGIL, Instructional design	A	teaching statement draft (A), research statement + cover letter draft (B)
6	2/12/24	Preparing a lecture, Student Engagement	A	
7	2/19/24	No Class - President's Day		teaching statement final (A), research statement + cover letter final (B)
8	2/26/24	Measuring student learning, Technology of Teaching	A	
9	3/4/24	Teaching large courses	A	
10	3/11/24	No class - Spring Break		
11	3/18/24	Professional Development, DEI, Business of CS	A	CS assignment: written (A+B)
12	3/25/24	Paper presentations	A+B	
13	4/1/24	Paper presentations	A+B	
14	4/8/24	Paper presentations	A+B	CS assignment: programming (A+B)
15	4/15/24	Paper presentations	A+B	
16	4/22/24	Paper presentations	A+B	
17	11/27/23	Paper presentations	A+B	survey results (A+B)

Course Sites

- https://bytes.usc.edu/cs698/
- https://edstem.org/us/courses/52207/

TLDR

As we will learn this semester, most problems that may arise while teaching can be avoided by following three general principles:

1) Define the rules in writing and well in advance.

2) Present a united and coherent front to your students, which requires tight communication within the teaching team.

3) When changes to the original plan must be made, make them as a policy change that applies to all students equally, and make sure everyone is made aware of the new policy.

Planning and organizing

- Important questions
  - When should I begin planning for my course?
  - How do I construct a syllabus?
  - What should I do on the first day of class?
- Good teachers plan well in advance
- A ‘typical’ TA should work with the professor ~2 weeks in advance
  - Define TA role
  - Learn Professor’s expectations
  - Review course material

Course Content

- Course content should be the material and ideas that are most necessary and that can fit into a semester
- Trying to pack too much information into a course can hinder students' learning
- Once the main ideas/content are selected they need to be organized into a coherent pattern
- As a TA you won't plan the high-level course content
  - But when you're a professor/instructor, think about how the courses at your undergrad and/or USC are structured

Syllabus

- Syllabus is a basic road map for the course
- Lays out course policies
- Makes expectations clear
- Provides pointers to resources the students can/should use
- “Contract”?
  - Personally I don’t like this analogy

Syllabus: core course information

- Course name, title, location, and meeting times
- Office hours and contact information for all of the instructors
- The instructional goals of the course
- Required texts and additional course materials
- Course prerequisites or special knowledge required

Syllabus: policies

- Late assignments OK? Penalty?
- Students with special needs/accommodations
- Statement on conduct (respect of others, cultural sensitivity, etc.)
- Plagiarism, “fair use” and expectations about using electronic sources
- How will students be evaluated? What is the formula for weighing particular assignments?
- Statement for students with disabilities

Syllabus: schedule and assignments

- A “course calendar”: dates for discussing readings and material
- Either list topics weekly, or outline content on a class-by-class basis
- Outline each assignment, any particular expectations for that assignment, and due dates

Your Course?

- How do the materials (syllabus, lesson plans, websites, rubrics, assignments) for the class you are TAing measure up?

Working with faculty

- Every TA should ask:
  - What are my responsibilities in this team?
  - How do I make sure that I perform these responsibilities in a way that serves the interests of other members of the team?
  - What can I do to make the overall team effort effective?

Working with faculty

- Three important commitments
  - Early coordination
  - On-going communication
  - Presenting a united front

Early coordination

- Do not assume that generic descriptions of your responsibilities are enough to understand the role you will play in a particular professor's class
- Responsibilities can be expanded or contracted depending on the teaching style and philosophy of an individual professor
- Clarify early

On-going coordination

- How are the students reacting to class and are they benefiting from your efforts? Keep the Professor informed about your work and its effectiveness
- Often you have more contact with student than the professor may have
- Particular questions, problems, or challenges that arise should be communicated to the Professor promptly

United front

- Act as a team when teaching a course
- If you disagree with the Professor it is fair for you to share your thoughts with him/her, but once a decision is made it is vital to put on a united front
- Students want to know that professors and TAs are working together
- You must act as a professional and do your best to make the approach and policies of the supervising faculty work

TA Time commitments

- 25% TA = 10 hours/week
- 50% TA = 20 hours/week
- Balance between office hours/other duties
- Who is the instructor of your course
  - Advisor (good/bad idea?)
  - Tenure track
  - Teaching track
  - Research track
- What about?
  - Conferences, paper deadlines, etc?
  - Don’t disappear/do nothing!

Checklist

- Do I know who is my direct supervisor?
- Have I exchanged tel numbers and email addresses with the professor and admin staff?
- Do I understand what I am supposed to do and how to do it?
- Have I become familiar with the daily classroom schedule?
- Do I know for which activities outside the classroom I am responsible (e.g., grading)?
- Do I understand the professor' s methods for the course?
- Do I know where the instructional materials for the course are kept?
- Do I know how to operate classroom equipment?
- Do I know where to get equipment?
- Do I know where supplies for the department are kept?
- Do I understand how I am to divide my time among tasks?
- Do I know whom to notify if I am going to be late or absent?
- Do I know what to do if the professor with whom I work is absent?
- Do I know how to take initiative and be a self starter?

Ask the following questions

What types of tasks am I expected to do:

___ Type or duplicate course material
___ Set up or maintain lab equipment
___ Create lab/homework assignments
___ Answer questions in lab
___ Help individual students in lab/class
___ Lead lab sessions
___ Run recitations
___ Lead students in discussions

___ Plan and give short presentations
___ Help students solve problems
___ Administer tests or quizzes
___ Create tests or quizzes
___ Grade papers
___ Make decisions about grading
___ Take full responsibility for a course and prepare the syllabus
___ Hold office hours or tutorials
___ Other tasks not included above.

Ask the following too

- Mentoring:

___ Regular (weekly?) meetings for professor's feedback
___ Regular communication with TA coordinator

- Evaluation:

___ Class or lab observation by professor or Head TA?
___ Discussion of student evaluations of TAs?
___ Written constructive feedback to help TAs
___ Semester-long TA training program offered by department
___ Other forms of help: what are they?

Action item/Assignment

- Ask the questions/fill out the checklist
- Then write a “one-page”, clear, concise summary of your TA duties this Spring
  - Write it as a post on Edstem tagged with the “Homework: Outline your Roles and Responsibilities”
- Include
  - Course name/number, faculty, course size, other course details (does it have a lab, or discussion, etc)
- Peer review
  - Comment on your peers' outlines. Be constructive (”looks good” isn’t a peer review)