



# Computer Science (CSCI) 698 Practicum in Teaching Computer Science

*(some slides from Laurent Itti  
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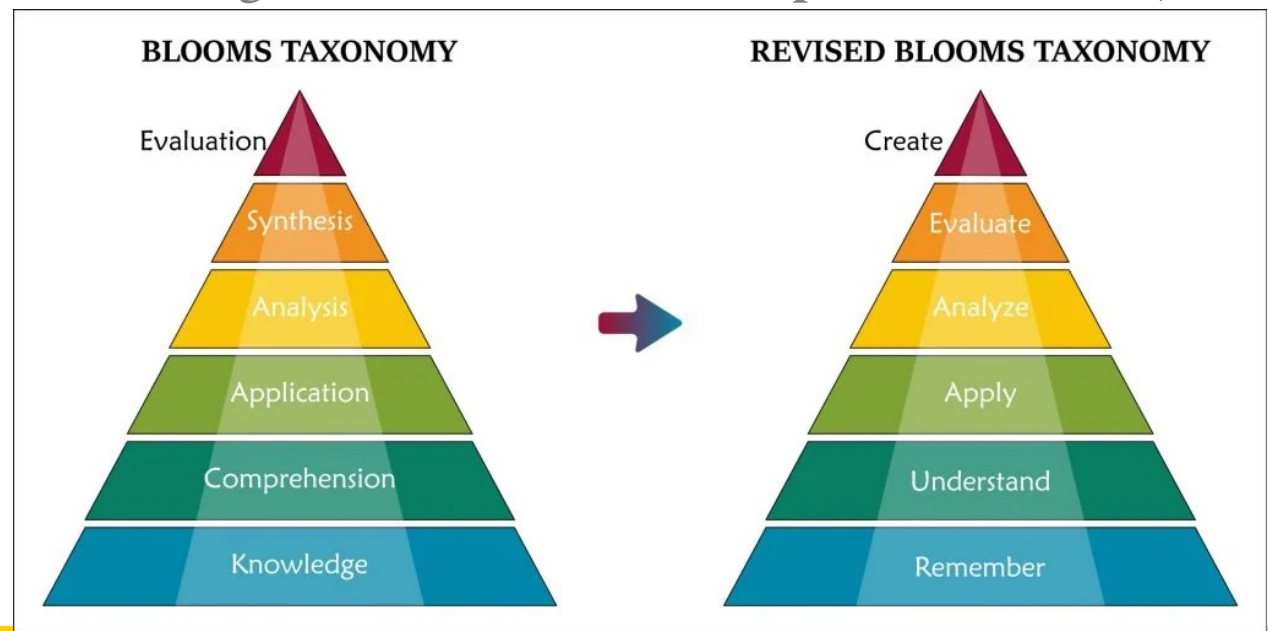
# How to teach?

- Before the how, the what
- What is teaching?
  - Helping students learn?
  - Giving students knowledge?
  - Giving students new skills?
  - ?



# Blooms Taxonomy

- 1956, revised 2001
- In one sentence, Bloom's Taxonomy is a hierarchical ordering of cognitive skills that can, among countless other uses, help teachers teach, and students learn.





# Teaching Definition

- Helping students move up Blooms Taxonomy through lectures, readings, problems, quizzes, projects, presentations, exams, tutoring...



# The curse of knowledge

- <https://bytes.usc.edu/~saty/courses/cs698/lectures/TeachTeq/clips/curse.mp4>
- “...once you learn something, [you] lose the memory of not knowing it, and you lose empathy for people who don't know it.”
- “...you may find yourself wondering how they could possibly no know that thing.”



# Teaching Techniques

- Lectures
- Labs
- Homeworks
- Projects
- Capstones
- Studio-based
- Pairing w/ Peers
- Flipping
- Co-teaching
- Field trips
- Field work
- Apprenticeship
- Experiments
- Observations
- Exams
- Quizzes
- Problem Sets
- Rote
- Open-ended
- Catechism-based
- One-on-one
- Essay-based
- FUN-based (charades, games, physical activities)
- Vocational Training
- Hands-on

Goal: students move up Blooms Taxonomy



# Specific Skills/Teaching Techniques

## Which Techniques?

- mathematician
- researcher
- police, fire, EMT personnel
- soldier
- social worker
- teacher
- lawyer
- business owner
- manager
- athlete
- actor
- musician
- dancer
- acrobat
- pilot
- machinist, plumber
- beauty technician



# Some Readings

- 'thinking classroom'
- HIGH IMPACT
- Retrieval
- Co-teaching





# How to Speak

- Don't we all already know how to speak?

<https://www.youtube.com/playlist?list=PL9F536001A3C605FC>

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# How to speak

- Goals and takeaways:
  - useful tips on teaching and public speaking.
  - helps you think about the speaking process and lecture preparation.
  - useful for TA job, teaching, research presentations, etc.



# CS/Engineering Education Research

- Where to find research about teaching (CS and engineering)?
- [SIGCSE](#) (the SIGCSE Technical Symposium on Computer Science Education)
- [FIE](#) (the ASEE Frontiers in Education conference)
- [ITiCSE](#) (the Annual Conference on Innovation and Technology in Computer Science Education)
- [ICER](#) (the ACM International Computing Education Research conference)
- [TOCE](#) (the ACM Transactions on Computing Education)
- [CSE](#) (the Journal of Computer Science Education)
- [CCSC](#) (Consortium for Computing Sciences in Colleges)