Department of Physics TA training: Guidelines on Making the Most of Your Teacher's Assistantship

Andreea Lupascu & Ian Chan

September 4th, 2013

Today's Training

- Teaching style and learning environment
- Communication in (out)side of the classroom
- Tutorials and labs, Constrained learning environments
- Lesson planning and Active learning
- Grading
- Classroom and Time management

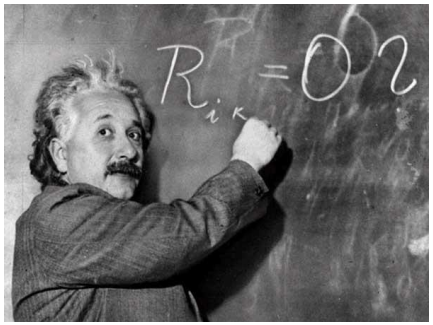
Ferris Bueller's Day Off - http://www.youtube.com/watch?v=uhiCFdWeQfA

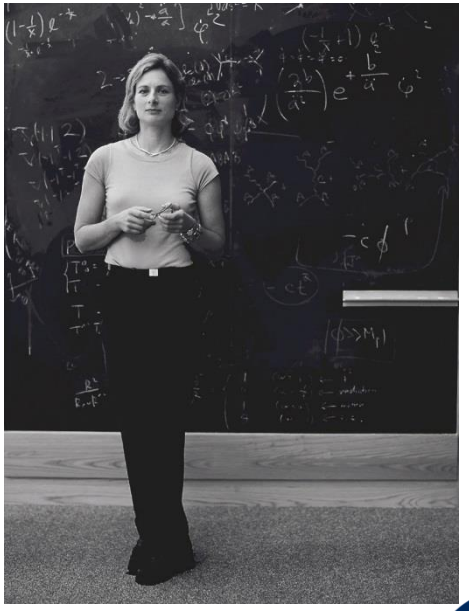
Answer the following phrase in as many ways as possible. They can be words or phrases or experiences you've had. Walk around the room and exchange answers with your fellow TAs

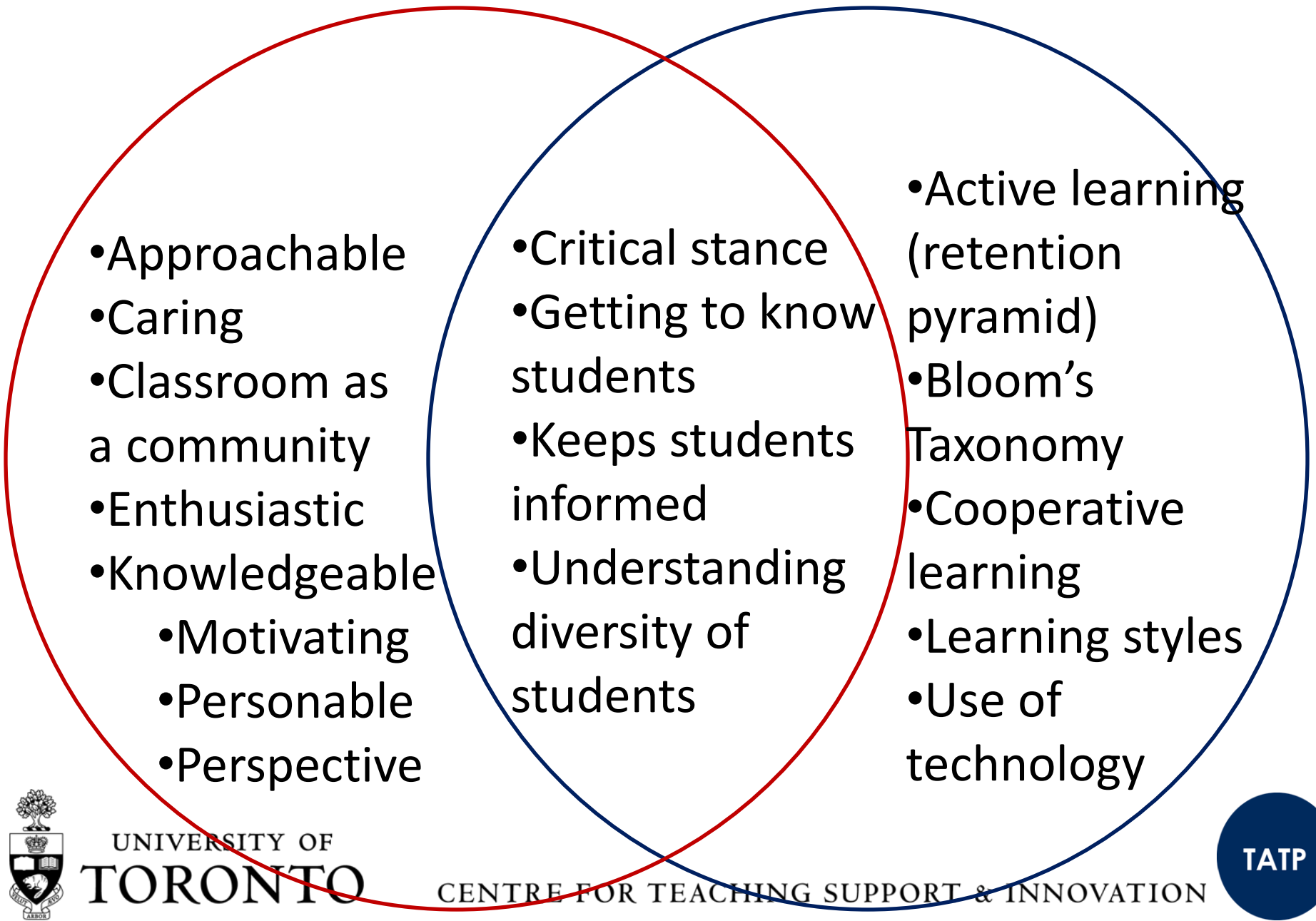
1. "Think about your most memorable teacher and why?"

2. "I best remember what I've learned when…"

Famous teachers



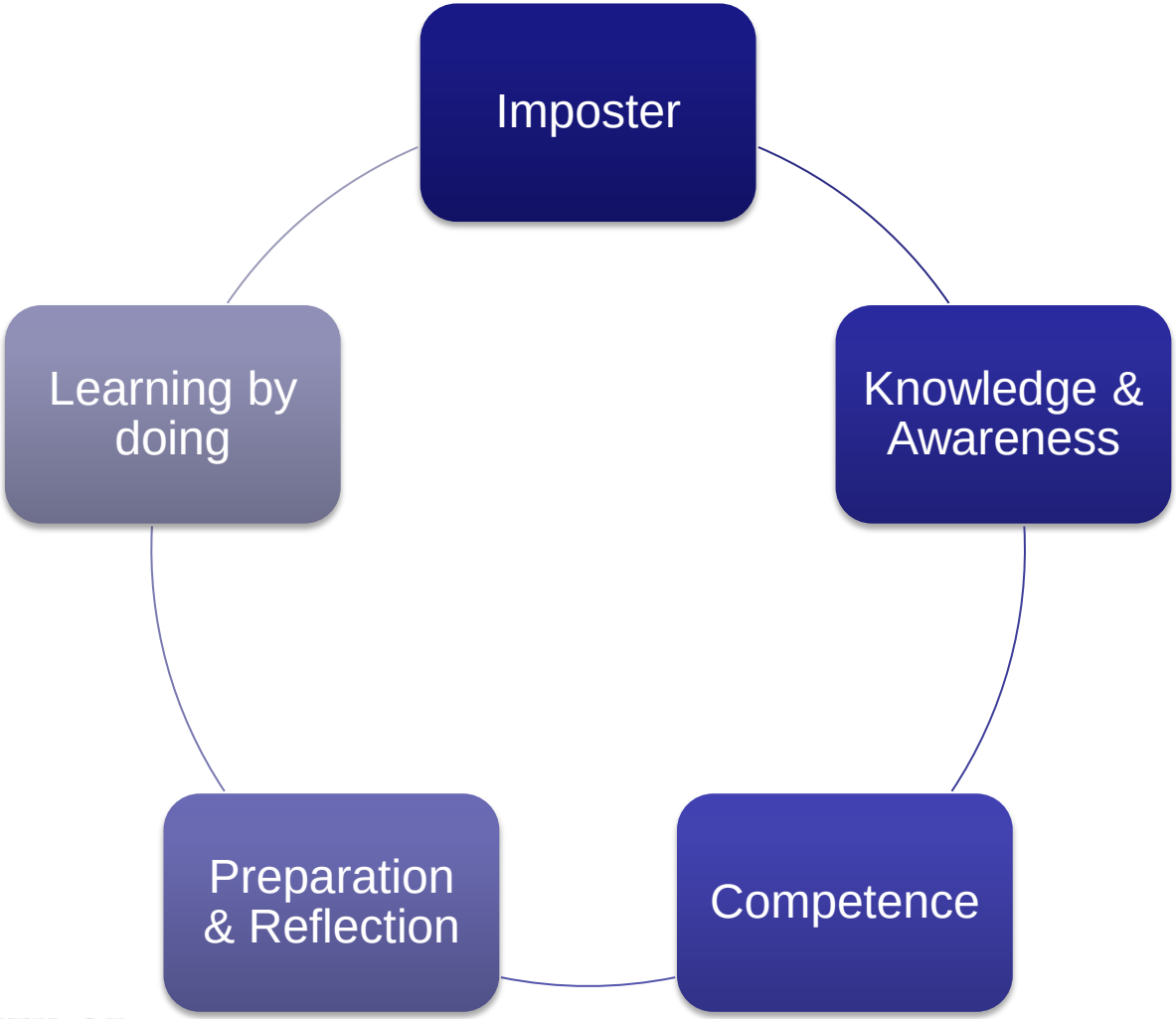



Personality Traits
Teaching Strategies
•Approachable
•Caring
•Classroom as a community
•Enthusiastic
•Knowledgeable
•Motivating
•Personable
•Perspective
•Critical stance
•Getting to know students
•Keeps students informed
•Understanding diversity of students
•Active learning (retention pyramid)
•Bloom's Taxonomy
•Cooperative learning
•Learning styles
•Use of technology

Who are you as a teacher?

- ✓ Teaching is complex
- ✓ …just as all students are unique, so are teachers
- ✓ We learn to teach, by teaching
- ✓ So who are you, as a teacher?
- ✓ Your actions tell your students about your teaching style
- ✓ We'll consider that by modeling another strategy….BUT FIRST:

Developing as a teacher

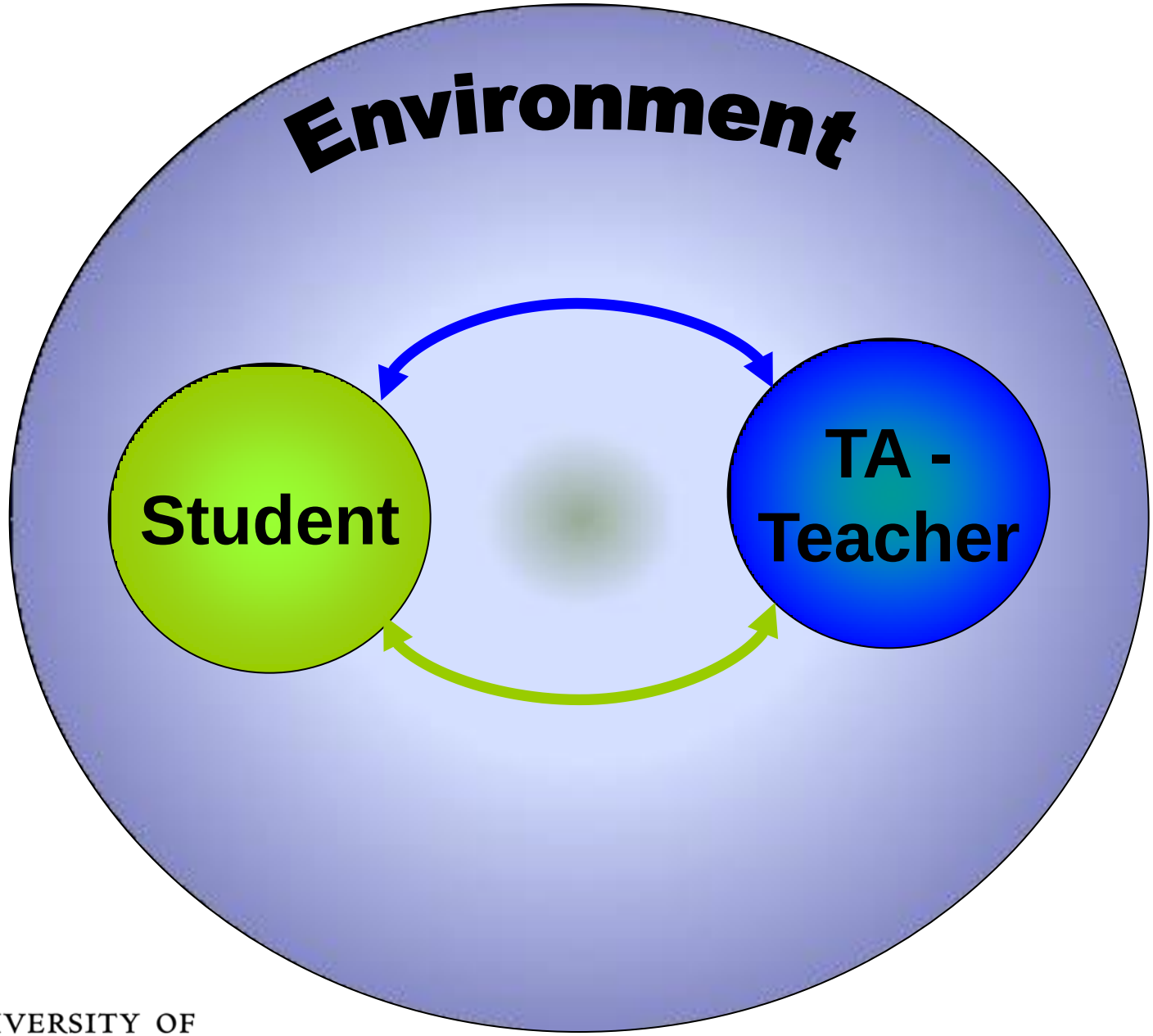


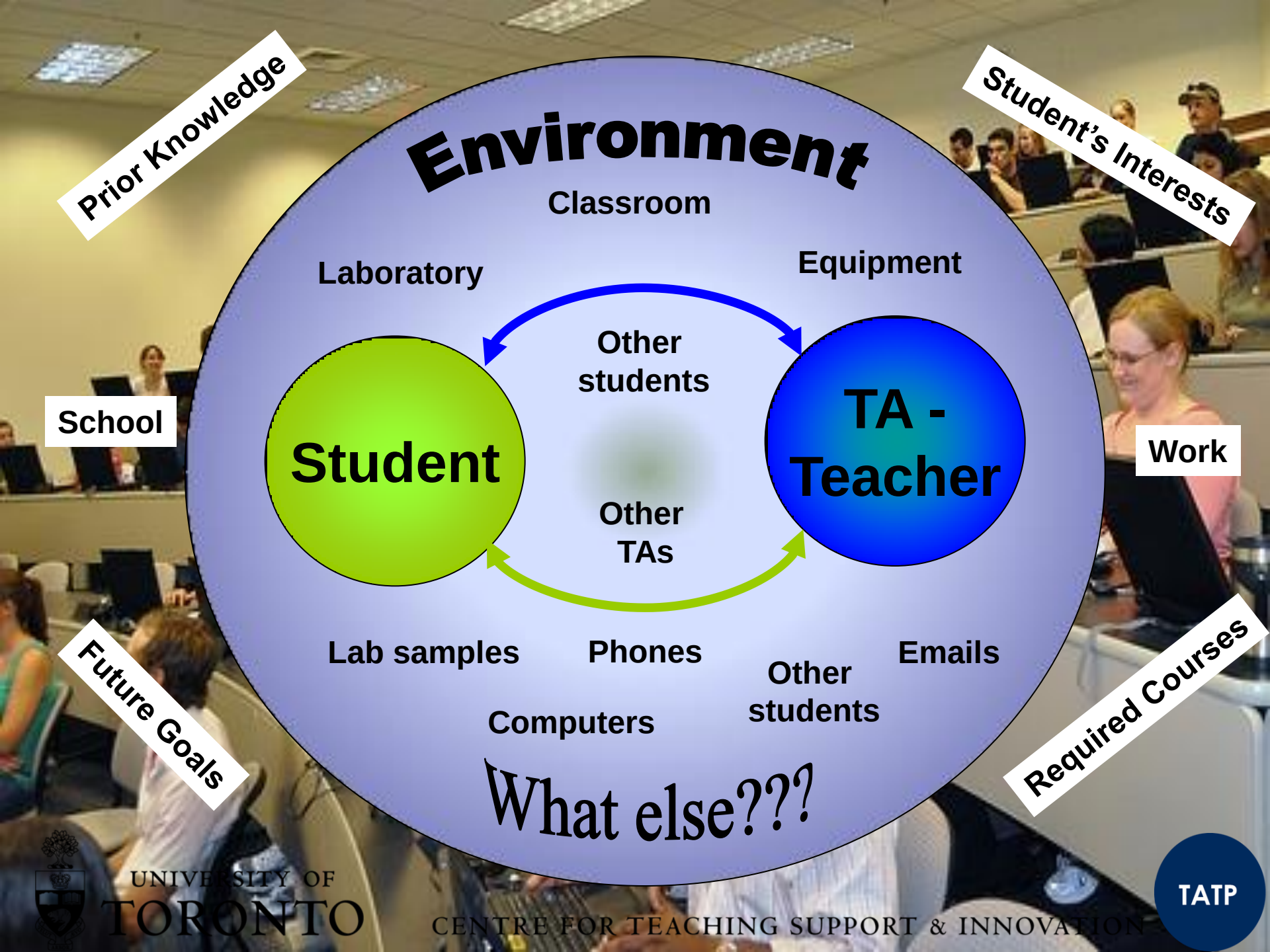
Imposter Syndrome

Imposter

Imposter Syndrome: Coping

- You are not alone!
- Re-evaluate your role as TA: Are you a 'fountain of knowledge', or a 'guide-by-the-side'?
- Change your comparison group; look at achievements objectively
- Don't forget: Teaching is a learning experience


Environment
Student
TA -
Teacher


Prior Knowledge
Student's Interests
Environment
Classroom
Laboratory
Equipment
Other students
Student
TA - Teacher
School
Work
Other TAs
Future Goals
Required Courses
Lab samples
Phones
Emails
Other students
Computers
What else???

Your first day

Before

- Get to know the room and location
- Prepare your lesson
- Practice what you want say

On

- Arrive early
- Display contact info
- Introduce yourself
- Use an icebreaker
- Establish ground rules
- Outline expectations
- Leave time for questions

Why is it so hard to be a public speaker?

- Introduce yourself to your class
- What are the first sentences you will be addressing your students this year?

Hello, My name is… I am a graduate student in the Physics Department, and I will be your TA this term

Communicating effectively

- rhythm and speed of speech
- voice modulation and articulation
- volume
- effective use of gestures
- emphasized important points
- enthusiasm

Presentation skills

Self evaluation

- Watch for visual clues... respond...
- Listening – The other half of communication!
- Informal progress report
- Self-evaluate
- Student reflection

Who are your students?

Who are your students?

- 1 in 4 first-years were not born in Canada
- 1 in 4 are first in the family
- 56% are female
- 51% of first-year live with family
- Most commute: 25% commute 10 hr/week
- 40% work off campus
- 1 in 4 sped 6 hours/week on co-curricular activities

NSSE University of Toronto, 2013

Know your students

- **Who** are they?
- **What** do they already know and want to know?
- **Where** are they from?
- **Why** are they there?
- **How** do they learn?
- What are their learning expectations?

Know your students

Connect with students

- Use audience-appropriate language
- Remember about the diversity of the class
- Actively encourage student questions
- Respond to confusing (or wrong) student answers

Build their confidence

- Be positive
- Reinforce jobs well done
- Encourage student to solve problem/answer questions
- Encourage group/peer-to-peer help
- Avoid embarrassing students
- Be organized: lead by example

Be yourself

Be flexible

Be sincere

Be respectful

Communication outside of classroom

How?

- Email
- Blackboard
- Feedback (grading)
- Office hours
- Impromptu meetings

What?

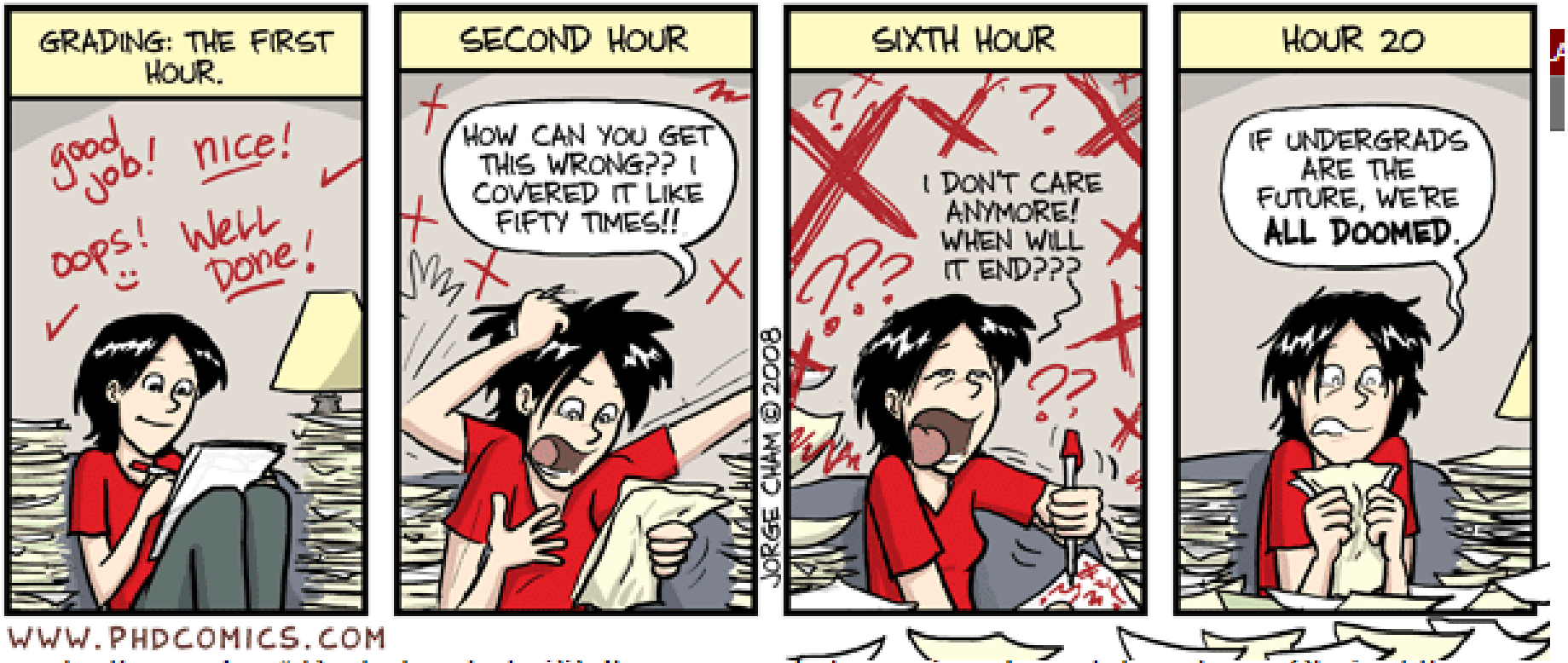
- Academic material, Expectations, Performances, Policies

- *Address your students in a professional manner*
- *Get feedback from students to ensure they understood your message/feedback*

MACLEANS.CA

on campus

Professional Conduct & Social Media



make them, stop." Posted on Feb. 22, the comments have since been taken down. Chair of the sociology department, Nancy Mandell, told the Toronto Star that Baggiarini has now apologized for her actions. "She's very sincere in that apology," Mandell said, but added that the comments were "very regrettable and inappropriate," and that they show "a lack of respect for students." The department is still investigating the matter.

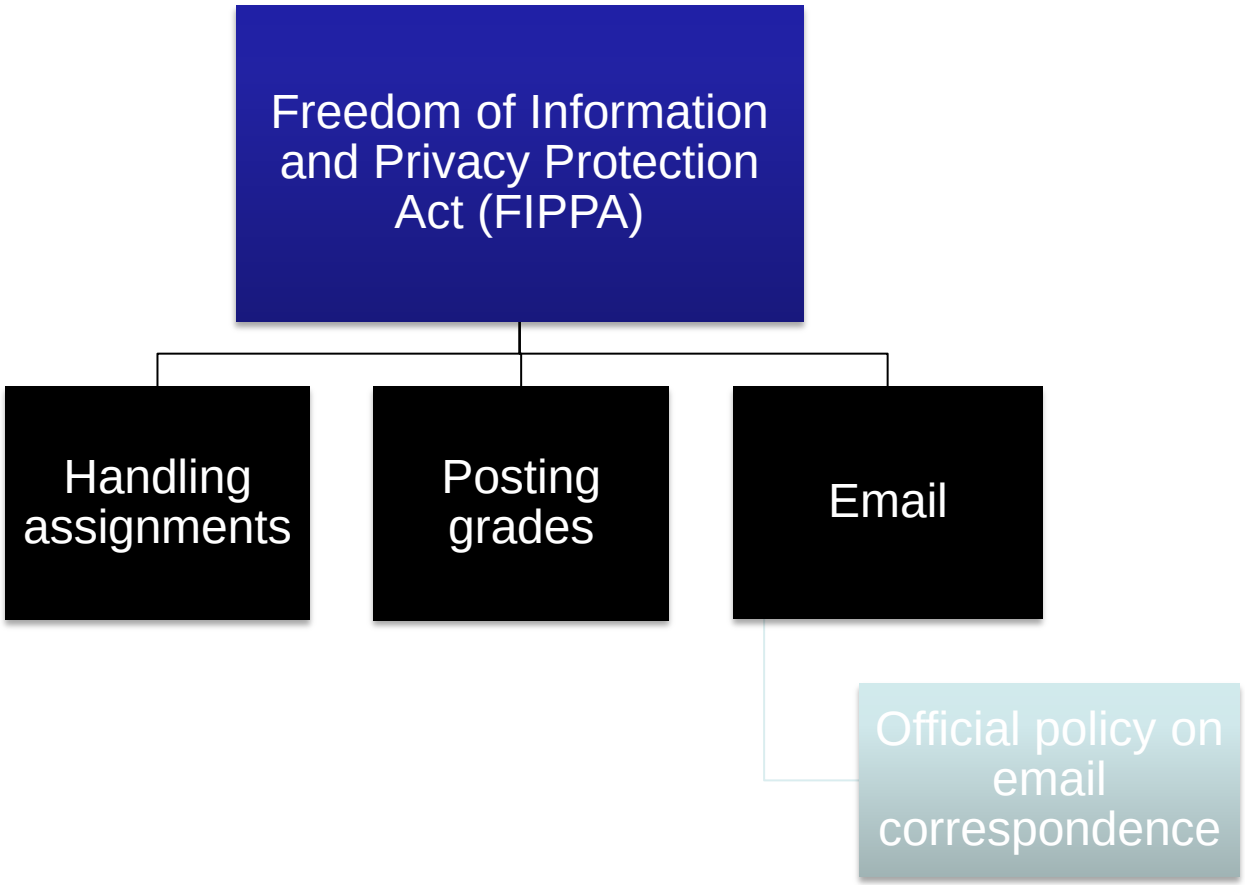
Communicating Expectations

Provide information on University policies & procedures

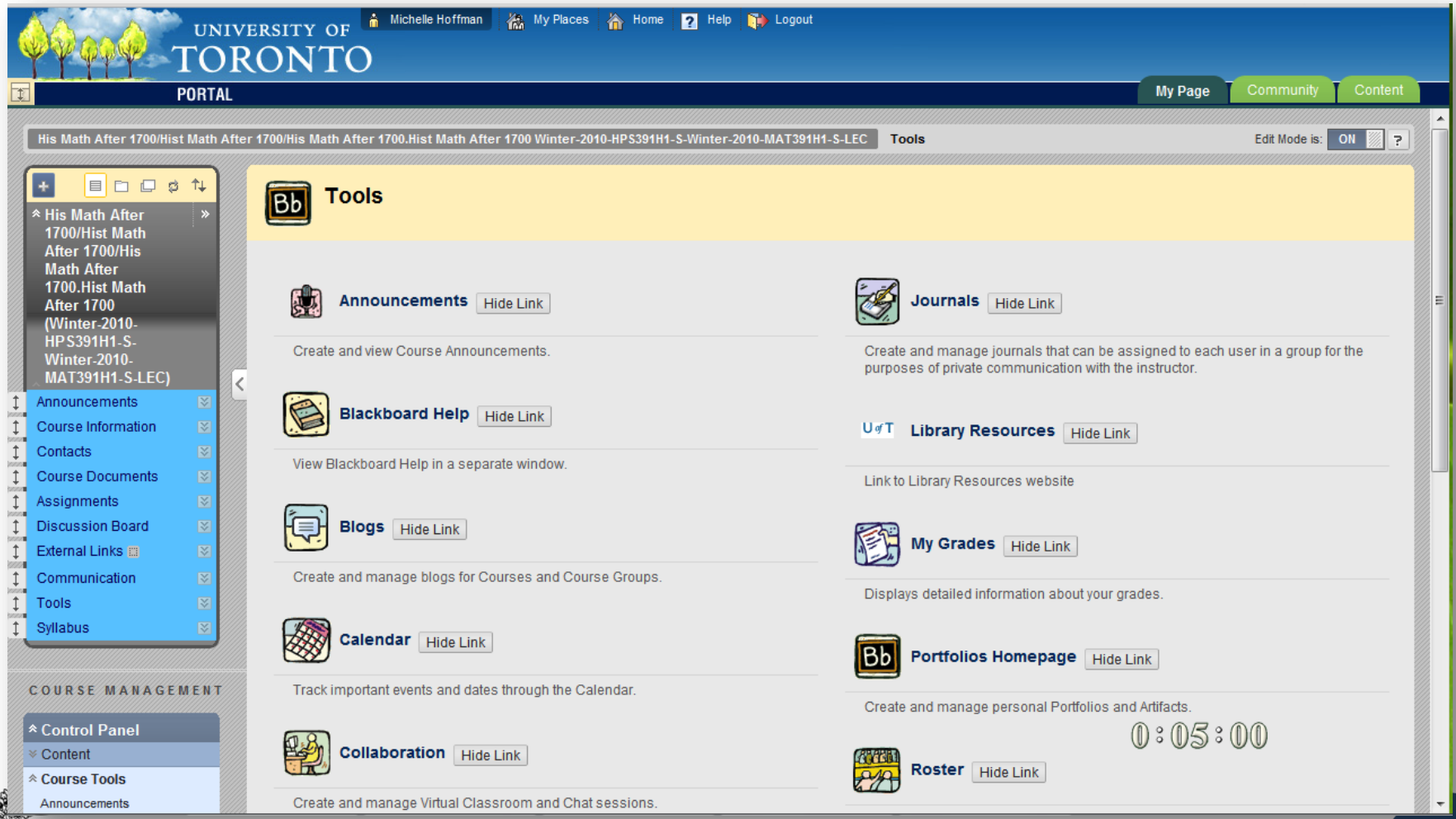
www.teaching.utoronto.ca/gsta/teaching-essentials/ta-toolkit/ta-responsibilities.htm

Respecting confidentiality

www.teaching.utoronto.ca/gsta/teaching-essentials/ta-toolkit/ta-responsibilities.htm



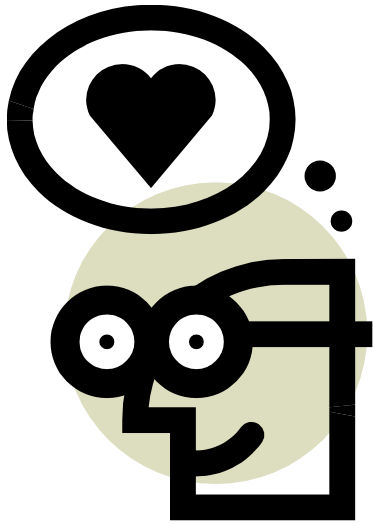
Blackboard


UNIVERSITY OF TORONTO
Michelle Hoffman
My Places
Home
Help
Logout
PORTAL
My Page
Community
Content
His Math After 1700/Hist Math After 1700/His Math After 1700.Hist Math After 1700 Winter-2010-HPS391H1-S-Winter-2010-MAT391H1-S-LEC
Tools
Edit Mode is: ON
His Math After 1700/Hist Math After 1700/His Math After 1700.Hist Math After 1700 (Winter-2010-HPS391H1-S-Winter-2010-MAT391H1-S-LEC)
Announcements
Course Information
Contacts
Course Documents
Assignments
Discussion Board
External Links
Communication
Tools
Syllabus
COURSE MANAGEMENT
Control Panel
Content
Course Tools
Announcements
Tools
Announcements Hide Link
Create and view Course Announcements.
Blackboard Help Hide Link
View Blackboard Help in a separate window.
Blogs Hide Link
Create and manage blogs for Courses and Course Groups.
Calendar Hide Link
Track important events and dates through the Calendar.
Collaboration Hide Link
Create and manage Virtual Classroom and Chat sessions.
Journals Hide Link
Create and manage journals that can be assigned to each user in a group for the purposes of private communication with the instructor.
Library Resources Hide Link
Link to Library Resources website
My Grades Hide Link
Displays detailed information about your grades.
Portfolios Homepage Hide Link
Create and manage personal Portfolios and Artifacts.
0:05:00
Roster Hide Link

Avoiding conflict of interest

www.teaching.utoronto.ca/gsta/teaching-essentials/ta-toolkit/ta-responsibilities.htm

Provost statement on conflict of interest and close personal relationships



- You MUST disclose it immediately to the CI.
- You can't be responsible for grading the student's work.
- You open yourself up to allegations of sexual harassment.

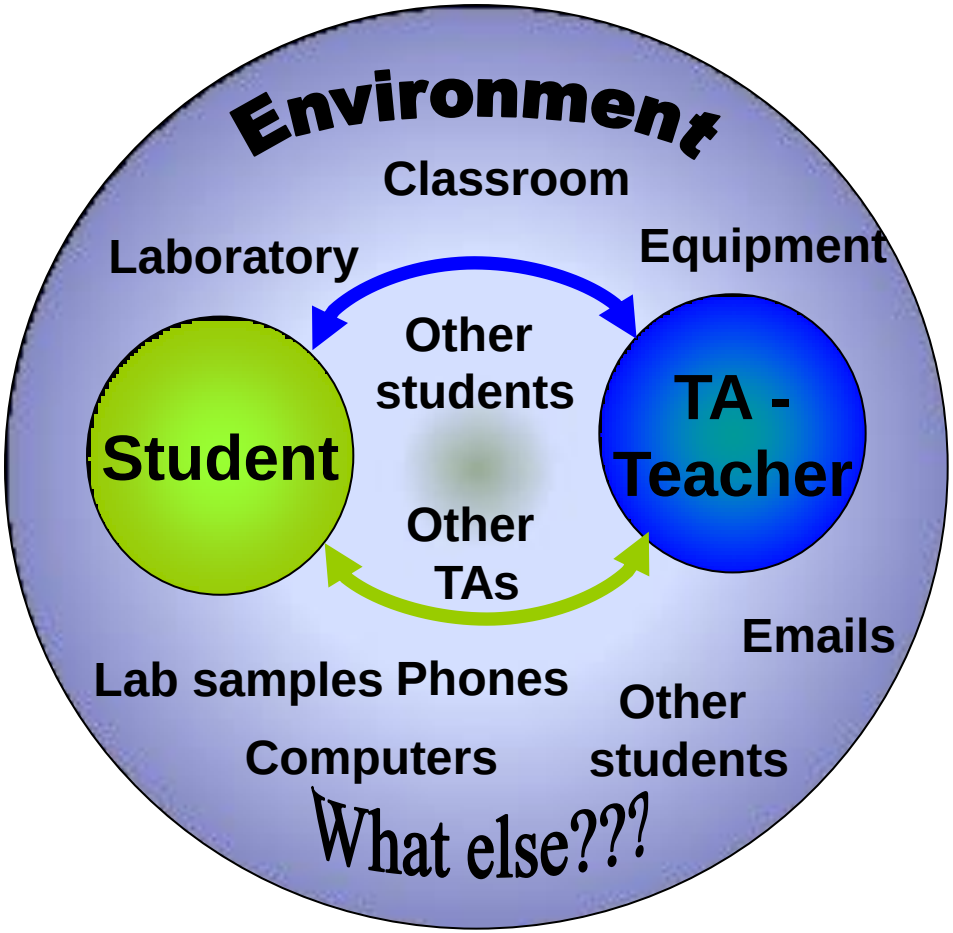
Communicating Expectations

Communicate your expectations on the FIRST DAY

- Deadlines, submitting assignments, being-late policy
- Be clear about how students should communicate with you: Email, in person, Blackboard
- How long you will take to respond
- Explain your reasons for doing things the way you do:

"I do not respond to emails the night before a mid-term because…"

Tutorials, Labs and TAs

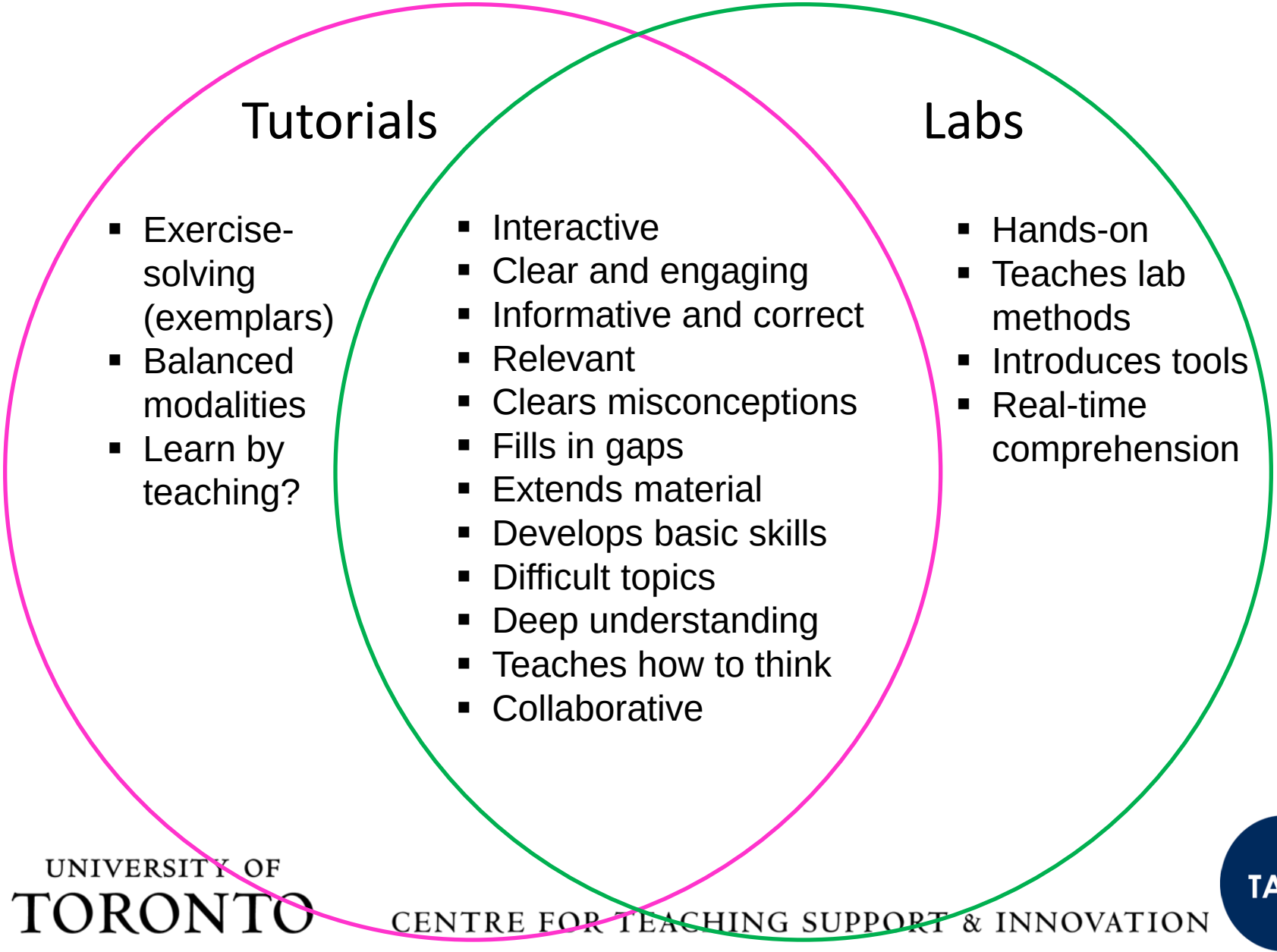


Take 1 min to write down your answers to these 2 questions, use key words expressions:

1. Thinking of tutorials or labs: What is their purpose? What makes them 'great'?

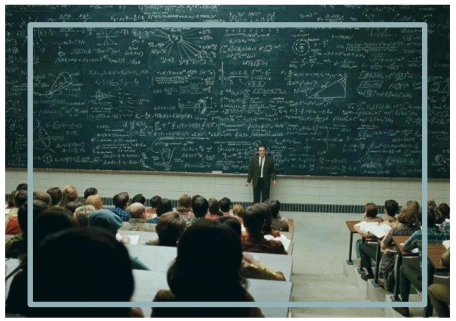
2. Thinking of TAs: What added benefits can TAs provide to students in tutorials or labs?

Effective tutorials and labs



Added value of TAs

Demonstrate high-quality thinking



Share experiences

Personal insights

Approachable

Demonstrate professionalism and intellectual ethics

Global view

Know your space

How would space influence your teaching?

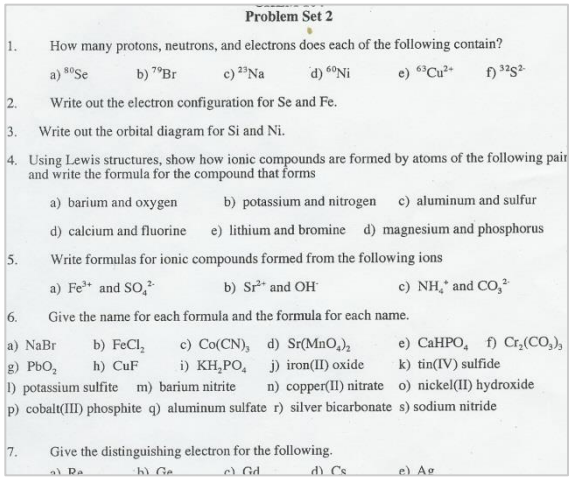
A. Lecture halls
B. Labs
C. Tutorials

http://www.flickr.com/photos/nayukim/3826773005/

http://www.osm.utoronto.ca/i/Photos/website/room_pics/BA-2139.JPG

Constrained Environments

- Constraint: Any factor or requirement that affects or dictates, to some degree, the learning environment.

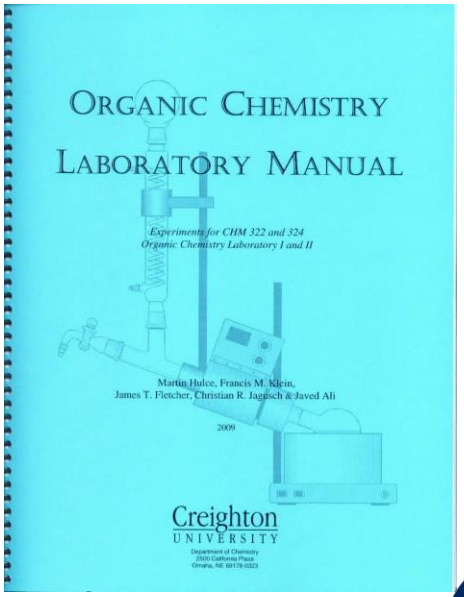


Problem Set 2

1. How many protons, neutrons, and electrons does each of the following contain?
   a) ^{80}Se b) ^{79}Br c) ^{23}Na d) ^{60}Ni e) $^{63}Cu^{2+}$ f) $^{32}S^{2-}$
2. Write out the electron configuration for Se and Fe.
3. Write out the orbital diagram for Si and Ni.
4. Using Lewis structures, show how ionic compounds are formed by atoms of the following pair and write the formula for the compound that forms
   a) barium and oxygen b) potassium and nitrogen c) aluminum and sulfur
   d) calcium and fluorine e) lithium and bromine d) magnesium and phosphorus
5. Write formulas for ionic compounds formed from the following ions
   a) Fe^{3+} and SO_4^{2-} b) Sr^{2+} and OH^- c) NH_4^+ and CO_3^{2-}
6. Give the name for each formula and the formula for each name.

a) NaBr b) $FeCl_2$ c) $Co(CN)_3$ d) $Sr(MnO_4)_2$ e) $CaHPO_4$ f) $Cr_2(CO_3)_3$
g) PbO_2 h) CuF i) KH_2PO_4 j) iron(II) oxide k) tin(IV) sulfide
l) potassium sulfite m) barium nitrite n) copper(II) nitrate o) nickel(II) hydroxide
p) cobalt(III) phosphite q) aluminum sulfate r) silver bicarbonate s) sodium nitride

7. Give the distinguishing electron for the following.
   a) Re b) Ge c) Gd d) Cs e) Ag



Constrained Environments

Tutorial Constraints

- Preset problem coverage
- Test or exam take-up
- Quizzes
- Theoretical exposition
- Preparation required
- Too much material
- Time

Lab Constraints

- Introductory comments
- Preparation required
- Preset experimental procedure
- Quizzes
- Required submissions
- Time

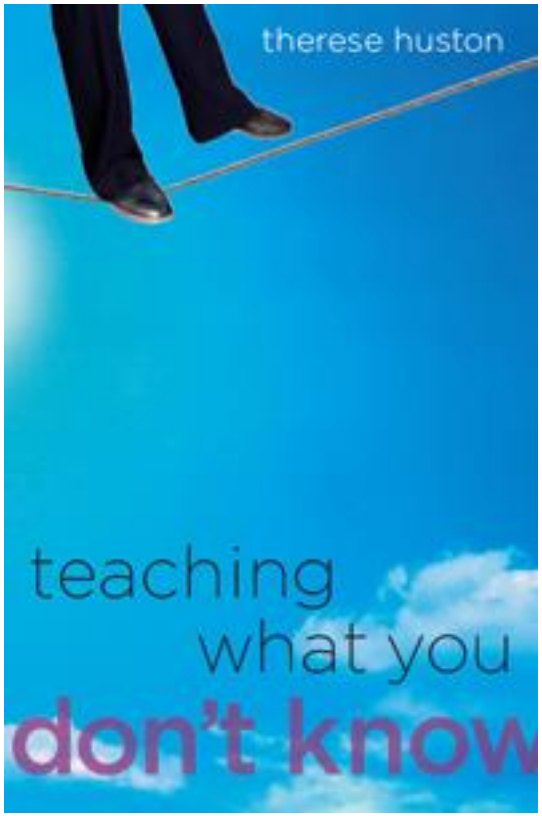
Scenario

During a particularly challenging portion of your lecture, Nora asks you an insightful question for which you aren't immediately sure of the answer.

Think-Pair-Share:

- For 1 minute, think about a strategy you could use to either prevent this from happening, or address it in the moment (mitigate).
- Pair up with someone and compare thoughts. Be prepared to share a couple.

Teaching what you don't know



Teaching what you don't know

What are the benefits?

- You learn something new.
- You connect with new fields, and broaden your research areas and interests.
- You spend more time thinking about students and their learning level.
- You learn along with students...but with more experience. You understand their context.
- You avoid 'teaching as telling'.
- You can be a 'cognitive mentor'.

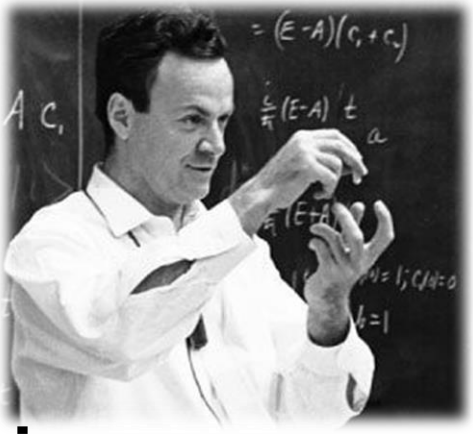
Helpful strategies

- Accept that there will be extra prepartion work, and plan ahead for it.
- Attend the class.
- Prioritize your learning.
  - What do the students know?
  - What specifically do you not know?
- Get ample feedback.
- Use active or collaborative problem-solving exercises in tutorials.
  - Think-Pair-Share
  - Problem Based Learning

At the end: Reflection

- Evaluate the experience.
- How did it go?
- What worked and what didn't?
- Was the preparation enough?
- It may be helpful to consult your fellow TAs to discuss your experience.
- What can you do to improve for the next class?
- Document for your teaching portfolio!

MICROTEACHING MINI-COURSE



- **Public Speaking for First-Year Physics Graduate Students**
- The goals of this mini-course are to practice talking up in front of a small group, and discuss the challenges and joys of public speaking. We believe that oral presentation skills are important to your future. These skills do not come naturally, but can be practiced and learned.

People

- **Coordinator:** Jason Harlow
  - **Office:** MP121B (North Wing, behind the paypho
  - **Email:** jharlow at physics
  - **Phone: (**416) 946-4071

- **Senior TAs:**
  - Andreea Lupascu
  - Office: MP 095
  - Email: alupascu at physics
  - Phone: 416-946-7471 or
  - 416-978-7347

  - Ian Chan
  - Office: MP 619
  - Email: ianchan at physics
  - Phone: 416-978-1499

- **Who? :** All 1st Year Physics Graduate Students + some interested higher level graduate students

- **When? :** 3 meetings, 7 hours total, spread out over Sep. 4 - 20, 2013.
- 1st meeting is 2.5 hours: Sep. 4, 2012 in MP111 (right now!)
- Each group will then meet for two hours twice (4 hours total), once during the week of Sep.9 - 13, and then again exactly 1 week later.

WHY???

The purpose of these sessions is to give you an opportunity to explore your own teaching style in a friendly, risk-free environment.

A web-cam, a chalk-board, a projector, and a computer will be available.

Each student will be provided with a USB drive with a video of their presentations, in case you want to review your presentations at home.

Payment and relation to TA work

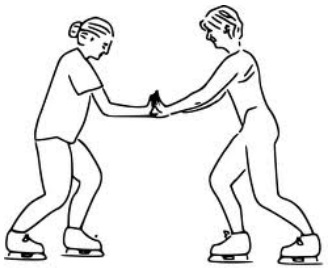
- This course is not for marks. Attendance will be taken, and an official record will be kept by the graduate chair of who participated as Pass/Fail only.
- An unofficial ranking of your public speaking abilities (on a scale of 1-5) will be sent to the undergraduate chair to help determine your future TA assignments.
- 7 hours are considered “TA Training” and you will be paid for this.

During the Two Hour Sessions

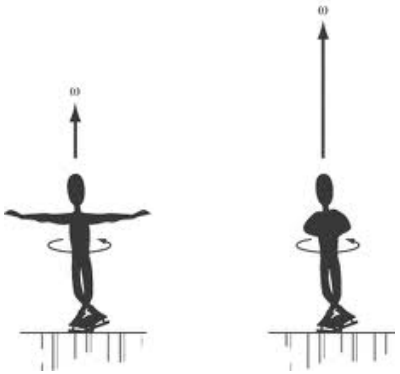
- There will be 4 students and 1 Senior TA.
- Each student will deliver a "teaching-style" presentation on a topic of their choice. The level of delivery should be understandable to a typical first-year undergraduate.
- After each presentation, the presentation will be reviewed, and comments may be made for the benefit of the speaker.

Suggested Topics

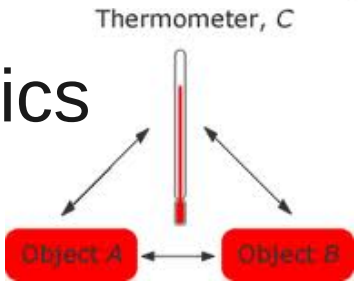
- Newton's Third Law



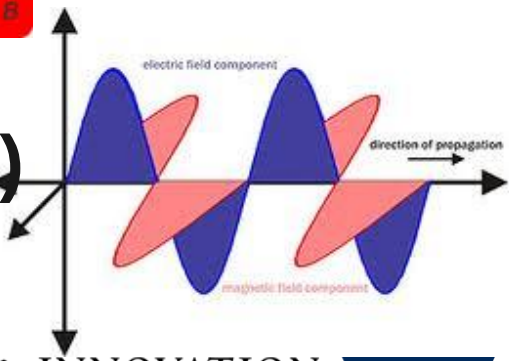
- Conservation of Angular Momentum



- Zeroth Law of Thermodynamics



- Polarization of Light



- **(choose one, make it fun, or modify!)**

First Session

- Each 5-minute presentation will be timed and video-taped.
- Immediately after each presentation, the tape will be reviewed by everyone, with minimal commenting.
- After watching the video, 10 minutes will be used for discussion and constructive comments about the delivery.
- Each presenter will receive a USB drive with their presentation for their review.

First Session

- For each presenter, the 3 peers and the Senior TA will fill out a Feedback Form.
- The presenter will receive all 4 feedback forms to aid in preparing the second presentation.
- Results of this first presentation will NOT be shared with the course coordinator, undergrad chair or graduate chair.
- The final 30 minutes of the 2-hour session will be a discussion and workshop lead by the Senior TA to help you prepare for your second, longer presentation.

Second Session

- The Second Session will take place exactly 1 week later, with the same group members and Senior TA.
- Each student will give a 10-15 minute teaching-style presentation which incorporates ideas and suggestions received during the first session.
- Please bring your USB drive from the first session, and your second presentation will be recorded for your records and future review.
- Comments, questions, discussion, and comparison with the first presentation will last 15-20 minutes after each talk.

Second Session

- For each presenter, the 3 peers may fill out a Feedback Form and share it with the presenter.
- The Senior TA will fill out a Feedback Form which will be then be given to the course coordinator, Jason Harlow.
- The numerical results of the Feedback will be averaged and shared with the undergraduate chair as an informal assessment of your public speaking ability.

Preparing your talk

- You are encouraged to use visual aids, such as powerpoint, or the chalk-board. A laptop with projector will be present in each room; you may bring a talk on a USB key, CDRom, or bring your own laptop.
- Time yourself! You must not go over the time limit – the Senior TA will be timing each presentation and cutting you off.

Speaking Tips

- Be well prepared; plan and rehearse the timing of what you will present.
- Have eye contact with the audience members.
- Speak clearly, and loud enough so everyone in the room can hear you.
- Make sure your visual aids are easily readable to all.
- Smiling, open hand-gestures, and voice inflections are okay – don’t monotone!
- Relax and be yourself!

Grading

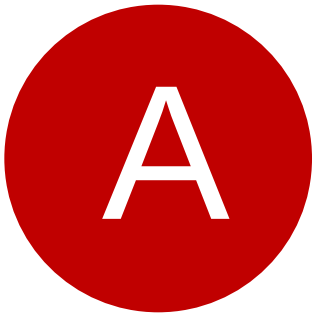

AHH...
THERE'S NOTHING LIKE SPENDING A QUIET EVENING AT HOME...
JUST ME, SOME CHOCOLATES...
...AND 200 PAPERS TO GRADE.
JORGE CHAM © 2008
WWW.PHDCOMICS.COM


A+

The ABC's of Grading

- You will be given a grading assignment with the students answers , solutions and a sticky.

- You will receive a handout with the grading method, either:



BLUE no marking scheme
YELLOW the U of T guidelines
GREEN a rubric

The ABC's of Grading

Tasks:

1. Read the assignment and solutions (10min)
2. Write down on the sticky
   - A final mark (**out of 10**)
   - How confident are you in defending your mark?

   (**Very unsure, Somewhat unsure, Somewhat sure, Very sure**)

   Bring sticker to Andreea or Ian

BLUE no marking scheme
YELLOW the U of T guidelines
GREEN a rubric

Observations: The ABC's of Grading

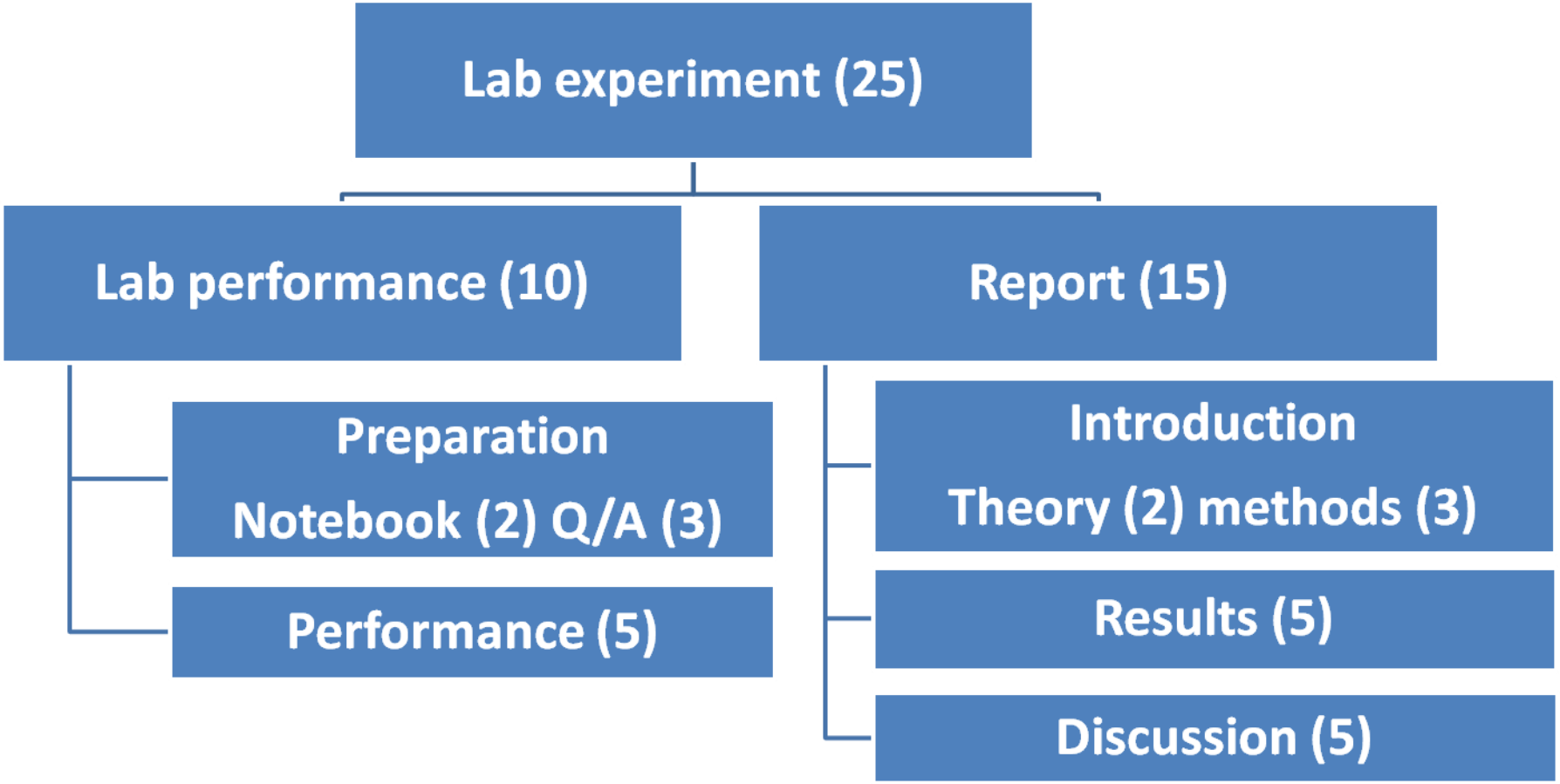
BLUE no marking scheme
YELLOW the U of T guidelines
GREEN a rubric

- Which method would be faster/ more consistent?
- What is the standard deviation? How to diminish that?
- How would you defend the mark you have assigned?
- Can the rubric be improved?

Designing Rubrics

- ✓ Identify evaluation criteria
- ✓ Decide on the total mark
- ✓ Break the assignment into sections
- ✓ Assign a mark for each section
- ✓ Get approval from instructor

Example- Grading a lab experiment



Grading Responsibilities

- Be fair, consistent and efficient (effective)
- Provide feedback
- Keep records
- Vigilant to and report Academic Integrity issues

The grading process

Before

- Communicate
  - Instructor
  - Students
  - Fellow TAs
- Work through the assignment
- Formulate detailed marking scheme
- Read few papers and revise marking scheme

The grading process

During

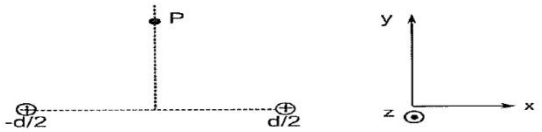
- Mark one question or section at a time
- Cover names or numbers
- Annotate rubric as you progress
- Provide useful written feedback
- Comments should be consistent with grade
- Make a list of common errors to report to entire class

Example of Feedback

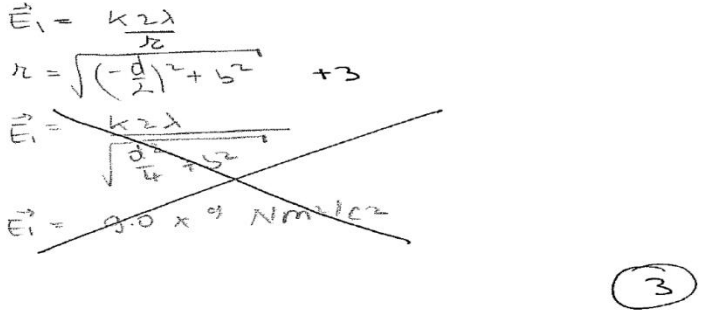
PART II:

Clearly show your reasoning and work as some part marks may be awarded. Write your final answers in the boxes provided.

Two infinite lines of charge extend parallel to the z axis, as shown in the figure. Each has a uniform charge per unit length λ. They are separated by a distance d.



A. [10 marks] Find the electric field $\mathbf{E}_1$ at point P due to the infinite line of charge on the left, as shown in the diagram. The (x, y, z) coordinates of P are (0, b, 0). Express your answer in terms of the unit vectors **i**, **j** and **k**, which point along the x, y, z axes, respectively.



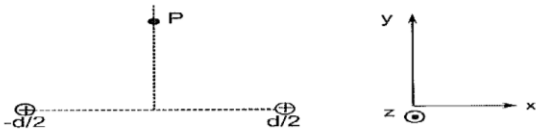
Is this mark justified?
What mistake did the student make?
What tips would you give the student?

Example of Feedback

PART II:

Clearly show your reasoning and work as some part marks may be awarded. Write your final answers in the boxes provided.

Two infinite lines of charge extend parallel to the z axis, as shown in the figure. Each has a uniform charge per unit length λ. They are separated by a distance d.



A. [10 marks] Find the electric field $\mathbf{E_1}$ at point P due to the infinite line of charge on the left, as shown in the diagram. The (x, y, z) coordinates of P are (0, b, 0). Express your answer in terms of the unit vectors **i**, **j** and **k**, which point along the x, y, z axes, respectively.

Is this formula correct? one side of the eq. contains a vector ($\vec{E_1}$), while the other side has scalar values.

$$\vec{E_1} = \frac{k2\lambda}{r}$$

$$r = \sqrt{\left(\frac{d}{2}\right)^2 + b^2}$$

$$\vec{E_1} = \frac{k2\lambda}{\sqrt{\frac{d^2}{4} + b^2}}$$

$$\vec{E_1} = 9.0 \times 9\ Nm^2/C^2$$

+3 points for magnitude

← The magnitude of $|\vec{E_1}|$ is calculated here. For expressing the vector components of $\vec{E_1} = \vec{E_1}(\hat{i}, \hat{j}, \hat{k})$ as requested, first express $\vec{r}$ using its ($\vec{r}_x$, $\vec{r}_y$, $\vec{r}_k$) components. (−5 points)

→ For obtaining full marks, all the steps in the derivation and reasoning should be explained and the direction of $\vec{E_1}$ and $\vec{r}$ should be illustrated in a diagram (−2 points)

3/10

Give students tips on where things to improve directly where they made a mistake!

Give students feedback on HOW to improve!

Direct your comments to the work, not the person

Effective Feedback is…

- **Constructive feedback**

- encourage & reinforce good ideas

- Assess and comment on the work alone, not the student

- **Efficient feedback**

- Give detailed comments on the first few assignments

- Focus on a few key criteria, be specific

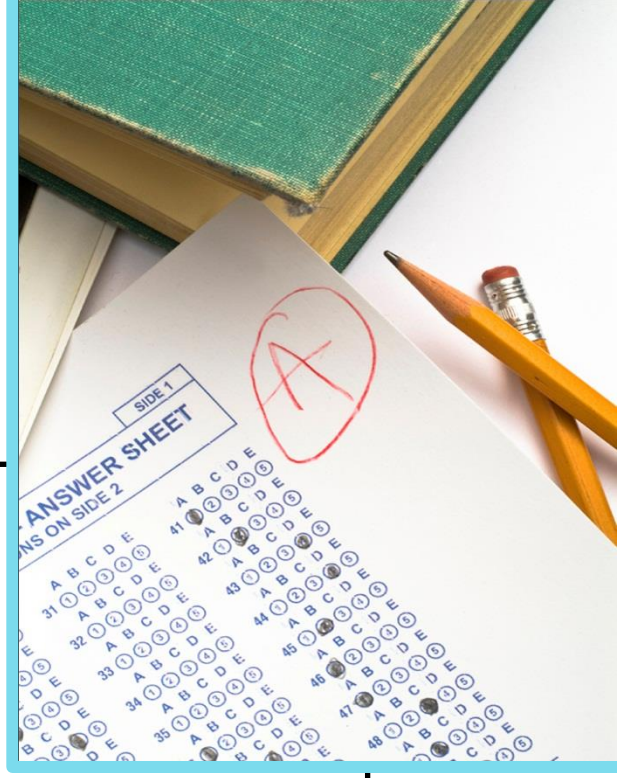
- Give general feedback to the class to save time

The grading process

After

- Ensure grades correspond to a fair ranking
- Record raw scores
- Return assignments to the students individually
- Return assignments when it is least disruptive
- Formulate policy for re-grading: written requests
- Set up a time to deal with grading disputes

The grading process



Finally…

- Have a clear head
- Avoid marathons
- Mark in a supportive environment
- Write clearly on assignments
- Give feedback that is detailed, specific and constructive

Case Studies

Case study 1:

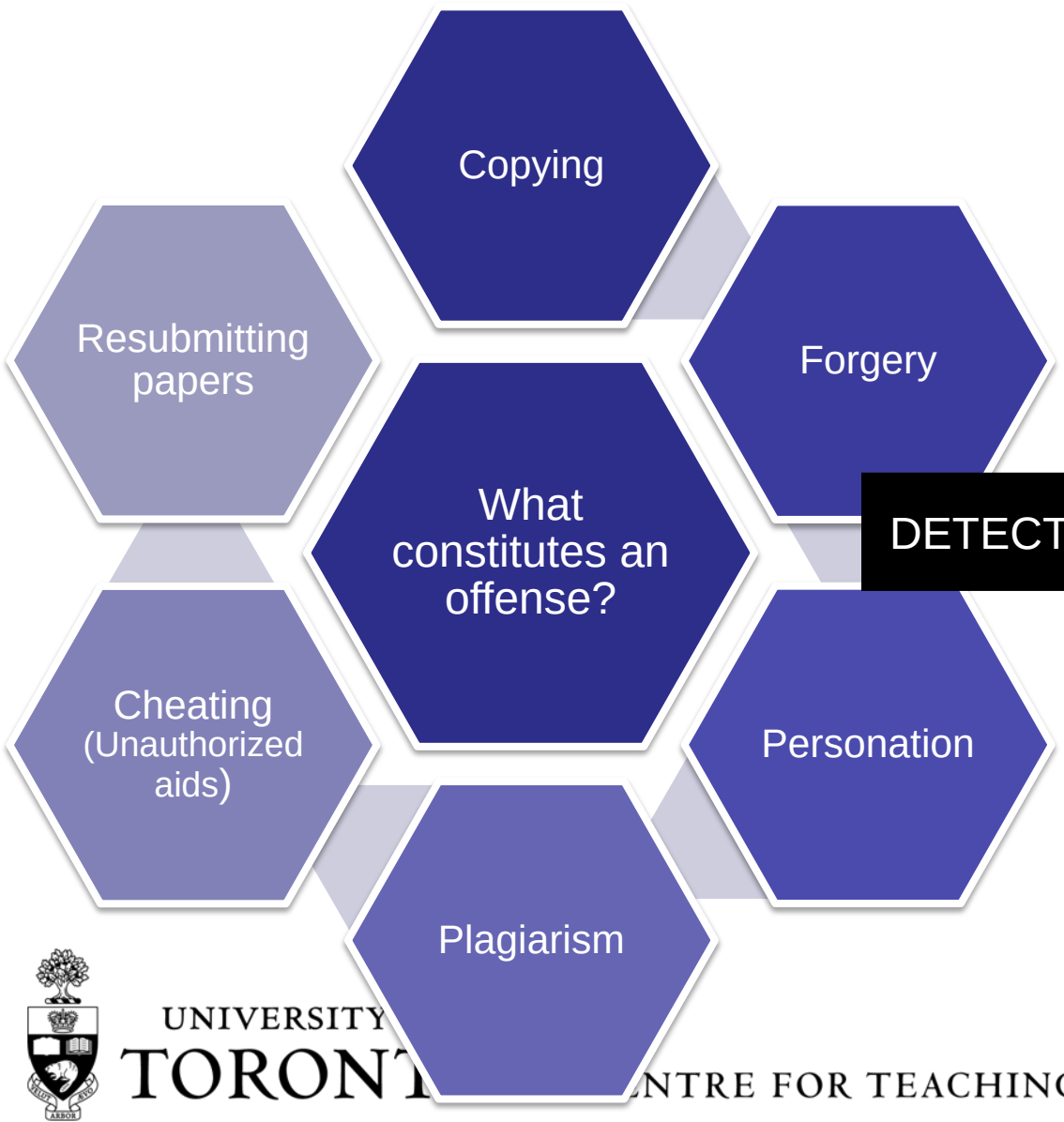
A group of students work on a lab assignment together. While they submit individual assignments, many sections of their work are exactly the same.

In your groups discuss

- **The issue (s) presented.**
- **How you would deal with it (them) in your role as a TA.**

Upholding Academic Integrity

Code of Behaviour on Academic Matters



DETECTION

- Know students' level of performance
- Look for repeated sentences or changes in style
- Resources: TurnItIn, MyDropBox or Glatt Plagiarism Services Inc., Search engines (Google)

Upholding academic integrity

www.teaching.utoronto.ca/gsta/training/tatoolkit/essential-policies.htm

Report it to the CI

- NOT reporting is an offense of the Code!
- You may be asked to compile evidence.
- LOG YOUR HOURS.

Retain the assignment

- Don’t assign a grade.
- Don’t return the assignment(s).

Exercise caution with the student

- Don’t accuse the student of plagiarism.
- Don’t impose penalties.
- Don’t advise the student to withdraw.

Disgruntled student

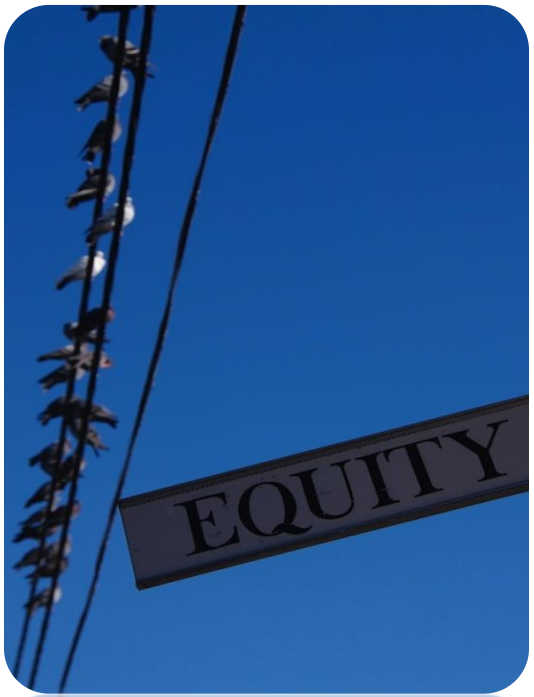
Scenario 1:

A student gets their assignment back and is angry about their grade and wants to speak to you right after tutorial ends.

A

Safeguarding the learning environment

www.teaching.utoronto.ca/gsta/teaching-essentials/ta-toolkit/ta-responsibilities.htm

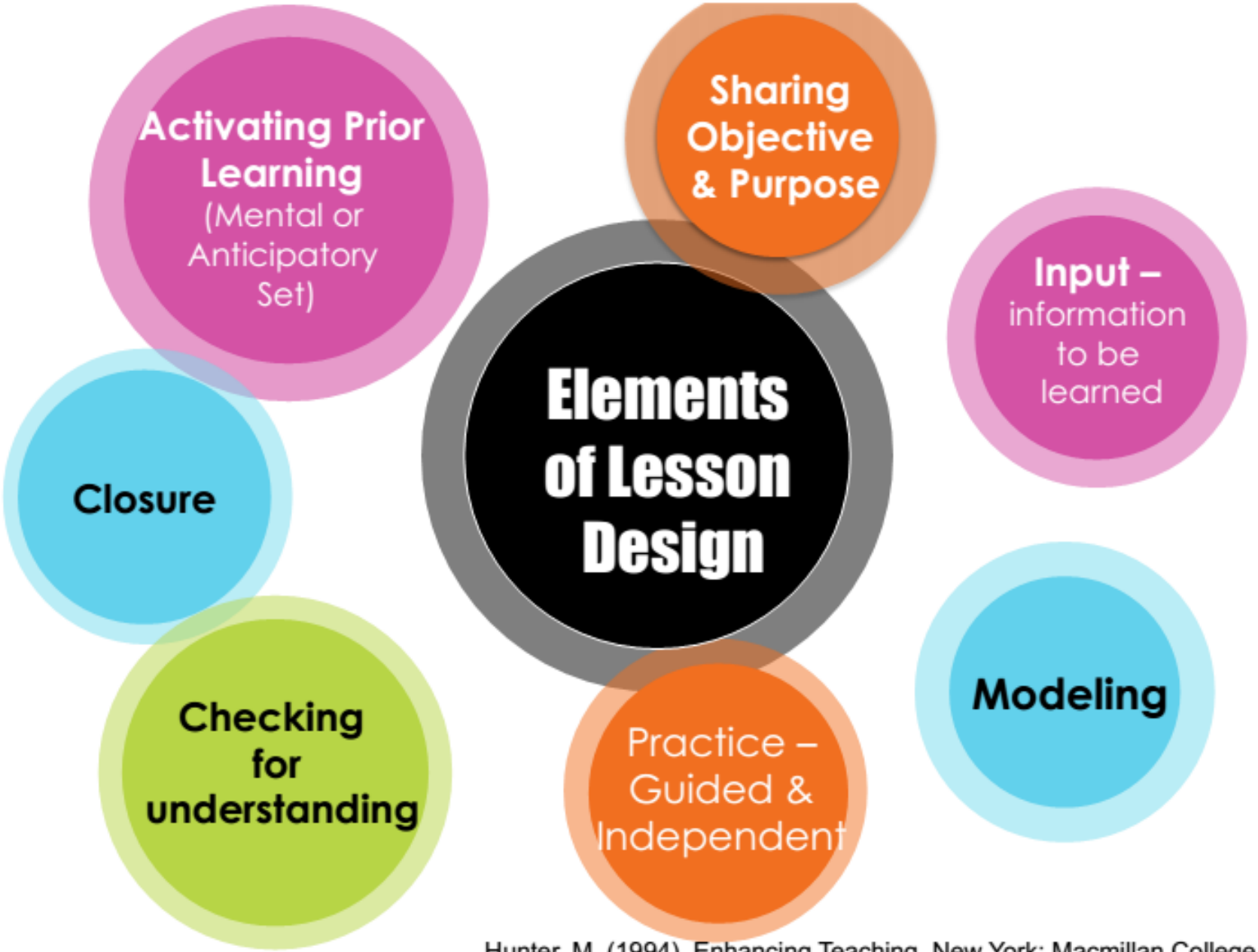


Policies:

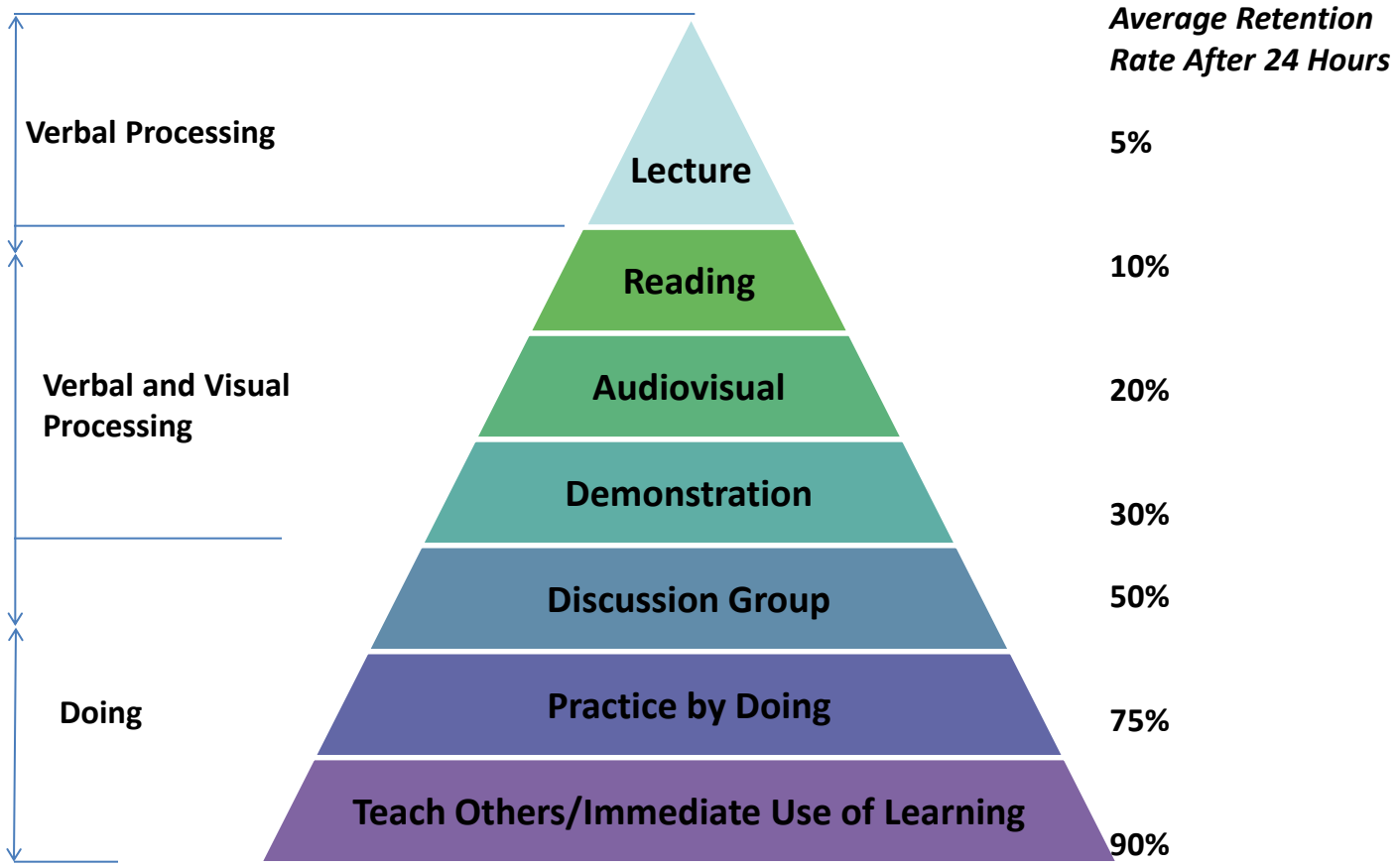
- Code of Student Conduct
- Ontario Human Rights Code
- Policy on Sexual Harassment
- Policy on Appropriate Use of Information Technology
- Accessibility for Ontarians with Disabilities Act

Where to go and what to do:

- Campus police: (416) 978-2222
- Student crisis response: (416) 946-7111
- Equity offices on campus: Community Safety; Anti-racism and Cultural Diversity; Sexual and Gender Diversity; Sexual Harassment Office
- Guide on online harassment – “Enough!”
- Students for Barrier-free Access (sba.sa.utoronto.ca)



Hunter, M. (1994). Enhancing Teaching. New York: Macmillan College.



The average percent retention of information after 24 hours for each of the instruction methods.

Note that the percentages are not additive.

Source: Adapted from National Training Laboratories of Bethel and NTL Institute of Alexandria, VA,
cited in David Sousa (2006) , *How the Brain Learns*, 3rd ed. California: Corwin Press.

Organizing your teaching

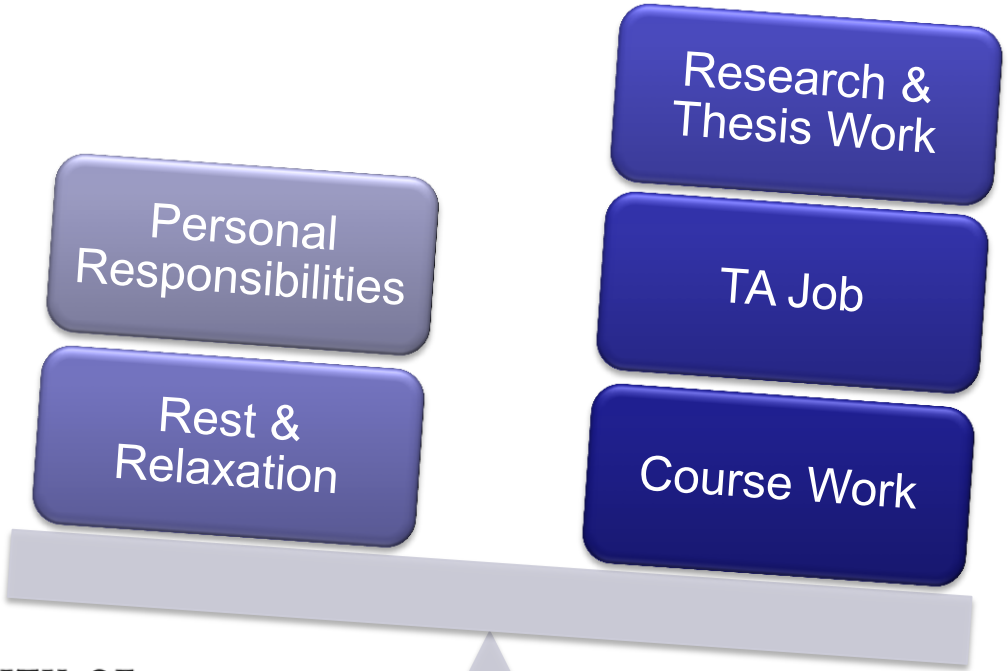
- Be organized: Decide on learning objectives (try for no more than 2 or 3).
  - **E.g., "At the end of class you will be able to solve 3D rigid-body equilibrium problems".**
  - **Keep track of learning objectives as you go.**
- Be concise: Each lecture or activity should hit a learning objective for that day.
- Be flexible: Estimate time. Don't *over-plan*.

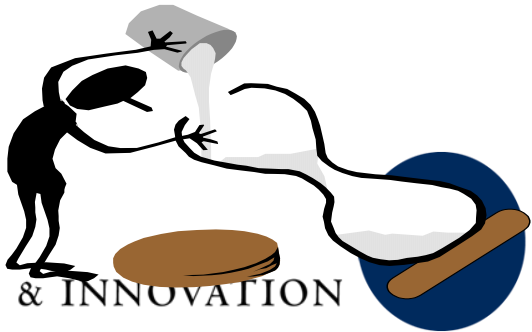
"Tell them what you will teach them, teach them, then tell them what you taught them."

Time Management

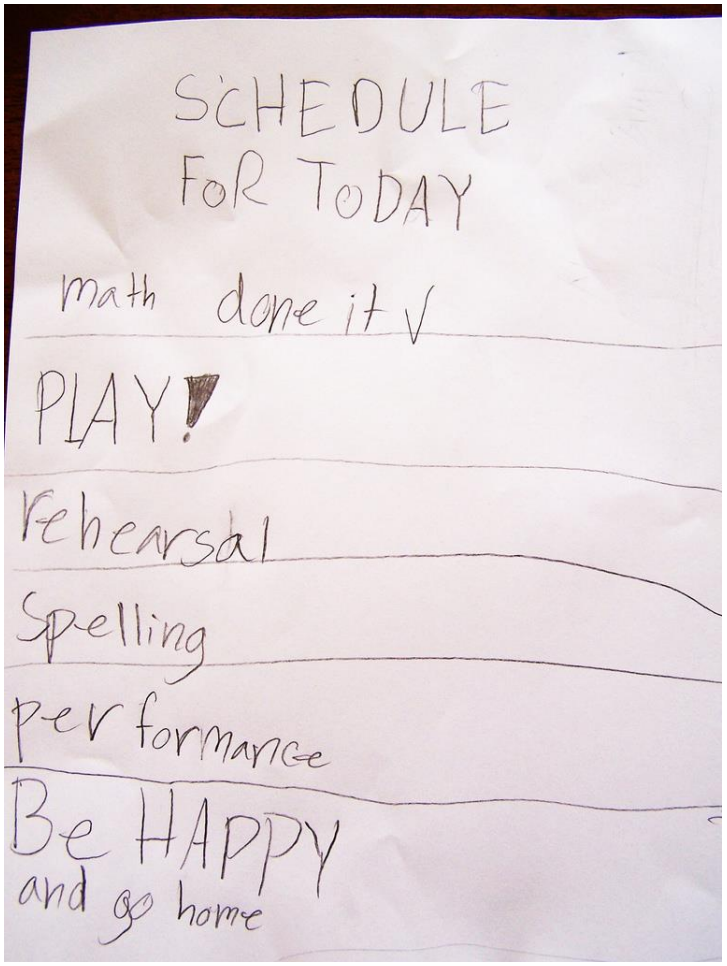
Health & Wellness

Professional Development





Time management tips



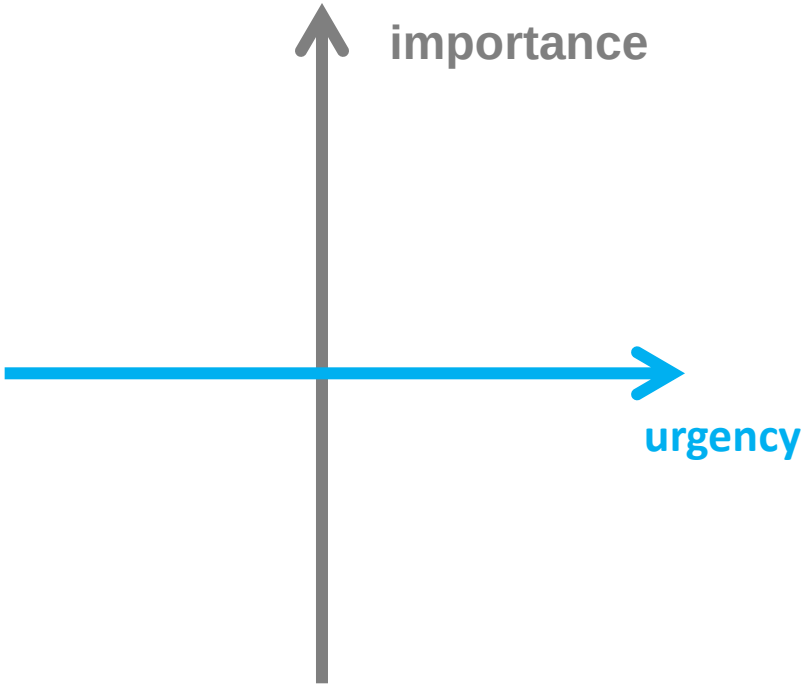
- Know yourself (reality check on how you use your time)
- Use time management tools (Monthly calendar, Day-timer, To-Do Lists , Timers)
- Use software (Google Calendar, Manic Time, Concentrate, hPDA)
- Design specific tasks and prioritize
- Learn to say NO
- Be disciplined, but flexible
- Reward yourself when you are done

Design Specific Tasks

- Write down a TO-DO list with specific activities:
  - Be specific when listing your tasks, but do not include too many details
  - do not list routine tasks
- Assign a time period for the completion of the task
- Be flexible, allow for the unforeseen or underestimation of the length of a specific task
- Do not focus only on short term goals, work on some long term goals (monthly, yearly planning) and review those tasks regularly
- Prioritize your list of tasks

Prioritize tasks

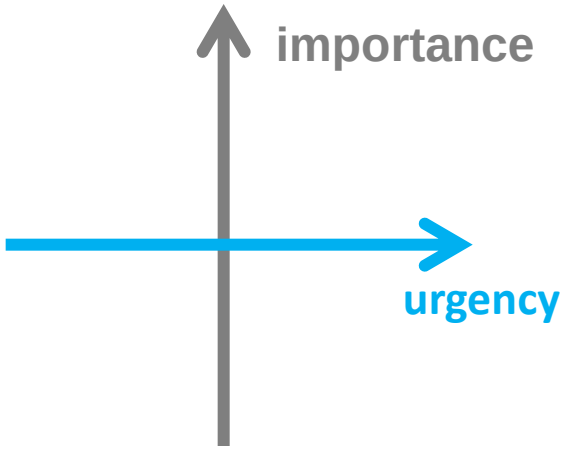
- Importance/urgency axis:



``*What is important is seldom urgent and what is urgent is seldom important.`` D.D. Eisenhower*

A day in your graduate student life

1. Think of your busiest day this week
2. You will be given some index cards. Use them to do the following:
   a) write down specific tasks for that day
   b) Organize your tasks using one or both of the priority scheme we have talked about
   c) Design a calendar for that day based on that priority scheme
3. Turn to the person next to you and discuss your schedule and the difficulties you had with designing that schedule



Time	Activity
10.00:11.00	Tutorial session
11:00-12:00	Respond to work emails
……	…

Teaching Assistants' Training Program

What do we do?

CUPE-Mandated First Contract Training

Year Long Workshop Series

Fundamental & Advanced Certificates in University Teaching

TATP Teaching Assistants' Training Program