



Computer programming

Spreadsheet



Database



CPSC 203

Introduction to practical problem solving
(James Tam)

Images:
Colourbox.com

Administrative (James Tam)

- Contact Information
 - Office: ICT 707 
 - Email: tam@ucalgary.ca
 - Make sure you specify the course name and number in the subject line of the email 'CPSC 203'
- Office hours
 - Office hours:
 - T&R: 14:00 - 14:50 (If I'm not in my office give me a few minutes or check the lecture room).







My Office

Images: courtesy of James Tam

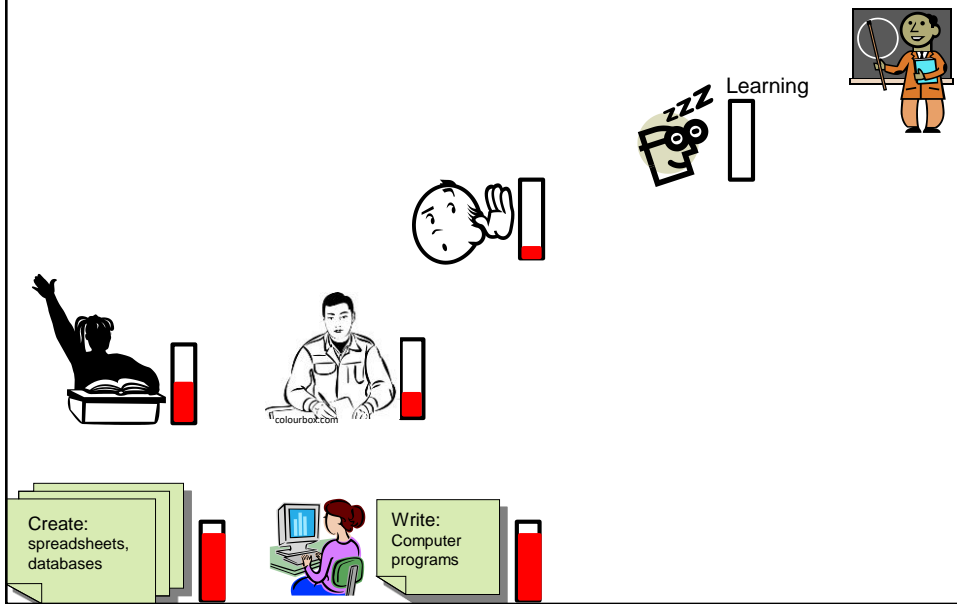
Course Resources

- Required resources:
 - Course website: <http://www.cpsc.ucalgary.ca/~tamj/2017/203F>
 - (You must get the slides off the course webpage before lecture so you don't have to copy them down during class)
- Course textbooks (recommended but not a mandatory purchases).
 - #1: For all assignments but especially helpful for the tougher ones (Assignment 2 & 3)
 - “**Computer Science Chop Suey! Computer & software fundamentals, practical problem solving**” by James Tam (Published by Wiley)
 - #2: Just for the VBA programming part of the course (Assignment 3)
 - “**Mastering VBA for Microsoft Office 2013**” by Richard Mansfield (Published by Wiley)

How To Use The Course Resources

- They are provided to support and supplement this class.
 - The notes outline the topics to be covered
 - At a minimum look through the notes to see the important topics.
 - However the notes are just an outline and just looking at them without coming to class isn't sufficient to do well
 - You will get additional details (e.g., explanations) during lecture time
 - Take notes!
 - If you miss a lecture then get a copy of the in-class notes from another student (who takes detailed notes)

Your Engagement Level \rightarrow Your Learning



Tam's "House Rules"

- I always endeavor to keep the lecture within the prescribed time boundaries
- You won't pack up and leave before time is up



Tam's "House Rules"

- No recordings/captures without permission during class please



- (Recall that learning tends to increase with additional levels of engagement).



Tam's "House Rules"

- Quiet whispering is OK...



...but make sure if it is **quiet**. If it's loud enough for me to hear then it's likely that others are being disturbed by the noise as well.



Images from
colourbox.com

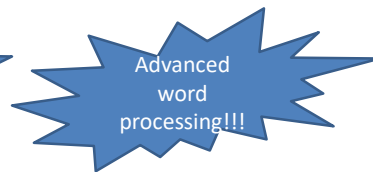
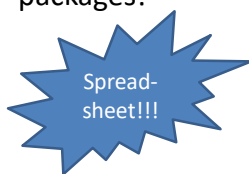
Windows Operating System: This Section

- Although assignments mostly on MS-Office, this course will teach concepts using a version of MS-Windows.
 - (The MAC-specific lecture is no longer timetabled).
- You might be able to implement your work on a MAC (some of these students have completed 203 in the past) but keep in mind available resources are for Windows.
 - That means if you have an odd technical glitch you might be on your own.
- Generally you can not only work on assignments in the CPSC 203 computer labs but many of the labs on campus.
 - Keep in mind some features of MS-Office may (for some reason) be disabled if you use a computer lab other than the 203 lab

Practical Course Outcomes



- You get to learn 3! Count 'em 3 commonly used software packages!



- But wait-there's more!!!

SALE!!!



Practical Course Outcomes (2)

- Employer XYZ wants to hire an Access © database developer or someone familiar with SQL queries now.
- This is what's hot, hot, hot



- But what's hot today may not look so good tomorrow
- Technology changes: get used to it



Practical Course Outcomes (3)

- You will not only learn how to use existing technologies (spreadsheet, database, word processor) but also how to problem solve and even create your own new software.
 - **Developing your thinking and problem solving skills will improve your ability to adapt to changes in the future**
- Problem solving is required in the programming component: writing VBA Word macros (Assignment 3)
- Some corporations have recognized the relationship between problem solving skills and success in the work world:
 - E.g., “Killer” interview questions
 - Google
 - <http://www.businessinsider.com/15-google-interview-questions-that-will-make-you-feel-stupid-2009-11?op=1>
 - Apple
 - <http://www.businessinsider.com/apple-interview-questions-2011-5#how-do-you-test-the-prototype-of-the-vending-machine-5>

Yes: “This Stuff Will Be On The Exam”

- The administrative notes contains important information e.g. how your grades are calculated, course policies etc.
- To encourage students to pay attention to details (and to reward those who do so):
 - Some of your midterm multiple questions will come from this section from this slide to the end
 - You may see a question or two from this section on the final exam as well.

Evaluation Components

- Assignments
- Examinations

Assignments (Proportion Of Term Grade 30/100)

- A1: Spreadsheet (Excel): *10% proportion of term grade*
- A2: Database (Access): *10% proportion of term grade*
- A3: Program writing (VBA): *10% proportion of term grade*

Assignments

- Assignments must be individually completed and individually submitted.
 - There is no group work allowed for this class.
 - Students **should not** see the assignment solutions produced by other students.
- Assignments will be marked by the tutorial instructor.
 - Grades will be posted in D2L
 - You can contact him/her for the grade and/or the completed marking sheet.
 - If you still have questions or issues after contacting your TA then feel free to contact your course instructor.

Submitting Assignments

- **Bottom line: it is each student's responsibility to make sure that the correct version of the program/document was submitted on time.**
 - Alternate submission mechanisms e.g., email, uploads to cloud-based systems such as Google drive, time-stamps, TA memories **cannot be used** as alternatives if you have not properly submitted into D2L
 - **Only files submitted into D2L by the due date is what will be marked**
- Late assignments will not be accepted.
- If you are ill then medical documentation is required.
 - Contact your **course instructor** and not your tutorial instructor to get permission for a late submission

JT's On Electronically Submitting Work

- Bad things sometimes happen!
 - A virus, hardware failure, you screwed up the submission.
 - **Backup your work** (not on the same storage device)
- Rules of thumb for assignment submissions:
 - Do it early! (Get familiar with the system)
 - Do it often! (If somehow real disaster strikes and you lose everything at least you will have a partially completed version that your TA can mark).
 - *Check your D2L Dropbox submission.*
 - Don't assume that everything was submitted OK.
 - Don't just check file names but at least take a look at the actual file contents (not only to check that the file wasn't corrupted but also that you submitted the correct version).
 - Assignment 0: 'A0':
 - An exercise in tutorial where you practice submitting and checking your work
 - Not directly graded but still important to complete

How To Check Your Submission In DropBox

- There is a help link provided with each assignment description.
- Teaching Assistants will cover this topic in conjunction with Assignment zero.
 - Not graded but important practice
- Resource file
 - <http://pages.cpsc.ucalgary.ca/~tamj/resources/Verifying%20D2L%20Submissions.pdf>

Assignments: Software Version¹

- It is your responsibility to ensure compatibility
 - A1 – A2 (MS-Office 2016 assignments)
 - TAs will use a Windows machine to mark whatever you submit
 - U of C students should be able to access Office 365 “for free” (while they are current students)
 - Info: <http://www.ucalgary.ca/it/office365/faqs>
 - Accessing (need a UC account):
 - » <http://www.ucalgary.ca/it/services/office-365> (click on the link “Access 0365 online”)
 - » <http://office365.ucalgary.ca/>
 - » If have trouble accessing: contact university UC-IT
 - » A2 (Access) isn’t part of Office 365 but you should be able to run it from most campus labs (including the 203 lab)
 - A3: The VBA program you write must be executable on the lab computers using MS-Word

Examinations (*Proportion Of Term Grade: 70%*)

- A mix of short answer and multiple choice questions
- Closed book (don't bring anything into the exam: just yourself and writing implements: at least one pen and at least one pencil)
- Midterm examination (*30% of term grade*)
 - Scheduled by your course instructor and will occur during the semester
 - **Thursday Oct 19 from 4:30 PM until 5:45 pm in ST 148 (Outside of normal lecture time)**
- Final examination (*40% of term grade*)
 - Cumulative but with a focus on topics covered after the midterm
 - The exam occurs during the regular end of term examination period so it will be scheduled by the Office of the Registrar
- If you are awarded a higher grade on the final exam vs. the midterm exam then: your midterm grade = final exam grade

Examinations (2)

- Information about the examinations will be available on the main grid before the respective test:
 - Under the main index:
 - Main grid: Course topics, lecture notes, assignment descriptions, exam information

CPSC 203: Fall 2017

Index

- [Lecture, important administrative course information](#)
- [Tutorial \(teaching and help tutorial\) information](#)
- [Course schedule, assignment and examination information](#)

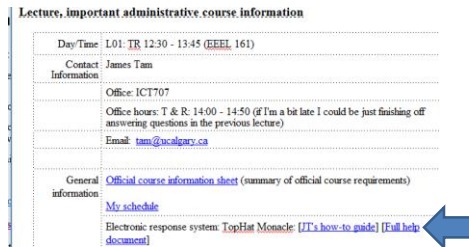
Oct 15 - 21 Databases: storing information (continued)

A brief in-class midterm review

Midterm examination information:
Thursday Oct 19 from 4:30 PM until 5:45 pm in ST 148
 (Outside of normal lecture time) [Exam information link will be here sometime before the midterm]

Sample Exam Questions

- In class (ungraded) quiz questions:
 - TopHat Monacle: information link



- More sample 'exam type' questions will be provided during the semester.
 - Sometimes 'on the fly' in lecture so **pay attention** to these and **take notes**.

Grades For Each Component

- The official grading mechanism for this (and most) universities is a letter grade/grade point e.g. A/4.0, A-/3.7 etc.
- Term grades must be stated as a letter grade.
- Component grades (assignment, exam etc.) can either be a letter grade or a raw score (e.g. percentage)
- For this class each major component will be awarded a grade point (and not a percentage) and this is the value used to determine the term grade.

Mapping Raw Scores To Grade Points: Assignments

- For simplicity assignment marking keys will specify grade points only
 - Example (purely for illustration purposes): spreadsheet computes average sales = 0.3 grade points, spreadsheet graphs results = 0.1 grade points etc., a macro allows the user to re-run calculations with different data = 1.0 grade points.
 - Sum the grade points for each feature in order to yield the grade point awarded for the assignment e.g., $0.3 + 0.1 + 1.0 = 1.4$ GPA earned if only the above features were implemented.

Mapping Raw Scores To Grade Points: Exams

- For examinations the mapping between a raw score and a grade point occurs one way (raw score mapped to grade point)
 - Example (purely for illustration purposes) 65 – 69% = C/2.0, 70 – 74% = C+/2.3
 - But grade points don't correlate back to percentages
 - e.g. I was awarded a 66% on midterm and then I see this is a 2.0 GPA (out of 4.0)
 - Does this mean that my percentage 'went' from a 66% to a 50%!!!!???
 - No.
 - A C/2.0 does not mean that 50% was awarded as a course grade.
 - To put this in perspective a passing grade point in this university is a 1.0/D in a course. If a grade point mapped back to a percentage this would mean that anyone getting a 25% or higher would pass any course here.
 - The mapping of the midterm to grade point will be posted sometime after the midterm grades have been released.
 - The mapping of the final exam to grade point will be posted sometime after the final exam grades have been released.

Why Grade Points?

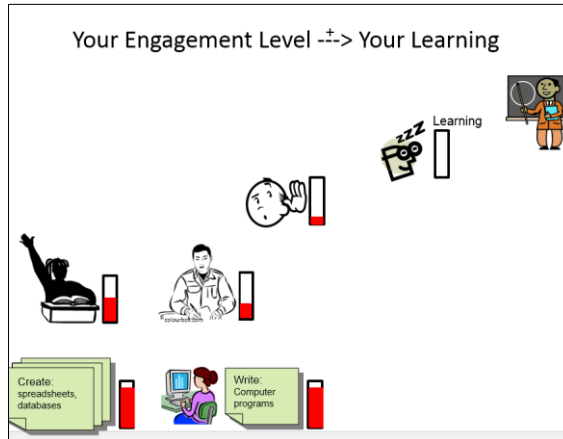
- It's the official university grading system
 - Alternatives are possible but require faculty level approval
- Approval of anything other than a grade point system requires predetermined cutoffs at the start of the term e.g., $\geq 90\%$ equals 'A' etc.
 - Doesn't allow for consideration that individual components may be more challenging than others (lower cutoffs)
- Grade points are more lenient for grades on the lower-middle end of the scale
 - Grade points: Getting an "A"/4.0 on the assignment component worth 30% of the term grade yields a minimum term grade of 1.2 ($4.0 * 0.3$) which equates to a term grade of 'D'
 - Percentages: Getting an "A" may roughly work out to 90% or higher (depending on the scale) which works out to a minimum term percent of $27\% = 90\% \text{ score} * 30\% \text{ weight}$...almost certainly an "F" for the term grade.

How To Succeed In This Course: A Summary

1. Practice things yourself
2. (Programming section): Make sure that you keep up with the material
3. Start assignments early
4. Take good in-class notes, not just what I write but also what I say.

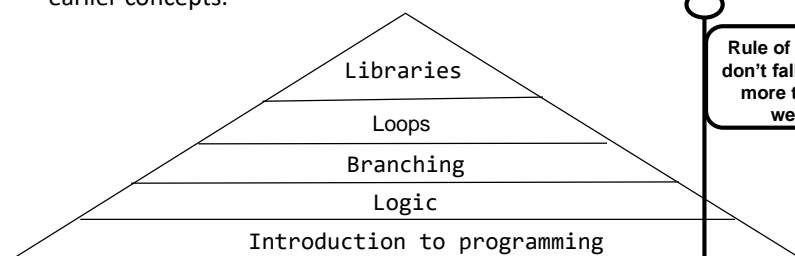
#1 Practice Things Yourself

- Recall



#2 (Programming): Keep Up With The Material

- (This applies to all topics but is especially pertinent to the VBA program writing section – A3 material - of the course).
- Concepts are cumulative and progressively more challenging
 - Many of the concepts taught later depend upon your knowledge of earlier concepts.



- Don't let yourself fall behind!
- *At least* attempt the assignment.

Rule of thumb:
don't fall behind
more than 1
week


#3 Start Assignments Early

- Don't look at the material just before the due date
 - Studying the concepts as you learn them throughout the term.
 - Programming section (A3) & to a large extent the database section (A2): It's important to work through and understand concepts **before** you start work on the assignment.
 - If you try to learn a new concept *and* work out a solution for the assignment at the same time then you may become overwhelmed.
- Don't start assignments the night (or day!) that they are due, they may take more time than you first thought
 - Assignments start getting much challenging later in the course (A2 & A3)

#3 Start Assignments Early (2)

- Some assignments may require the application of multiple concepts, not all the concepts have to be completely covered before you start working on an assignment.
 - Start working based on what's currently been covered
 - A good work habit in real life (work on only a part of a problem at a time)

#4 Take Good In-Class Notes

- Hierarchy of note taking
 - None: just memorize course slides/notes.
 - Moderate: write notes when the instructor writes things out (“must be important”).
 - Extensive: write notes when the instructor writes things out but also when that person verbally describes things.
 - When making notes, paraphrase concepts rewording things using your own terminology and phrases
 - This is essential when complex technical concepts (e.g. A2 & A3 material) are covered.
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How To Succeed In This Course: A Summary

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