We’ll post this course outline on Canvas throughout the term, with any needed updates.

1. **Prerequisite**

CPSC 221 or an equivalent, approved course in data structures and discrete mathematics from a previous institution. Please note that the CPSC department enforces prerequisites. Students without appropriate prerequisites will get a “missing prerequisite” letter near the start of the course. Watch for it in your e-mail if you fall into this category, and follow the instructions in the letter to resolve it. If you do not have the prerequisite, you will be dropped from the course.

2. **Instructor and TAs: Office Hours and E-Mail Addresses**

**Office Hours:** Online using Zoom. The times will be announced shortly after the start of the term, and we’ll also announce them at the start of lectures. All times are in the Vancouver (Pacific) time zone.

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Who?</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mondays</td>
<td>TBA</td>
<td>TBA</td>
<td>online</td>
</tr>
<tr>
<td>Tuesdays</td>
<td>TBA</td>
<td>TBA</td>
<td>online</td>
</tr>
<tr>
<td>Wednesdays</td>
<td>TBA</td>
<td>TBA</td>
<td>online</td>
</tr>
<tr>
<td>Thursdays</td>
<td>TBA</td>
<td>TBA</td>
<td>online</td>
</tr>
<tr>
<td>Fridays</td>
<td>TBA</td>
<td>TBA</td>
<td>online</td>
</tr>
</tbody>
</table>

**TA Office Hours**

<table>
<thead>
<tr>
<th>TA Office Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mondays</td>
</tr>
<tr>
<td>Tuesdays</td>
</tr>
<tr>
<td>Wednesdays</td>
</tr>
<tr>
<td>Thursdays</td>
</tr>
<tr>
<td>Fridays</td>
</tr>
</tbody>
</table>

**Instructor Office Hours**

<table>
<thead>
<tr>
<th>Instructor Office Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mondays</td>
</tr>
<tr>
<td>Tuesdays 18:30-19:30</td>
</tr>
<tr>
<td>Wednesdays 15:00-17:00</td>
</tr>
<tr>
<td>Thursdays 14:00-15:15</td>
</tr>
<tr>
<td>18:30-19:30</td>
</tr>
<tr>
<td>Fridays</td>
</tr>
</tbody>
</table>

(See Section 6 below for the TA-to-Tutorial section mappings.)

**E-mail:** Because this is a very large class, it is simply not practical for the instructor or the TAs to respond to individual e-mail requests (or private postings) of a general nature. Limit such e-mail to items having a personal or confidential nature (e.g., prolonged illness). Lectures, tutorials, office hours, and Piazza are suitable places to ask general questions.

**Instructors:** Dr. Raymond Ng (Section 101)  rng AT cs.ubc.ca
Dr. Ed Knorr (Section 102)  knorr AT cs.ubc.ca
Teaching Assistants: (alphabetically by first name)

<table>
<thead>
<tr>
<th>Name</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adi Chinchure</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Ansel Hartanto</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Charles Chen</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Elisa Hu</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Farnoosh Javadi</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Jeremy Gill</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Jingqi Zhang</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Jingyu Liu</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Kenrick Yap</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Michael Yin</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Nandini Bulusu</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Tianyi Zhang</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Tracy Wong</td>
<td>See Canvas for e-mail address</td>
</tr>
<tr>
<td>Xiaoan Yang</td>
<td>See Canvas for e-mail address</td>
</tr>
</tbody>
</table>

3. Grading Scheme

To pass the course, you must obtain a 50% overall mark, and a 50% overall (weighted average) mark on the exam components (quizzes + final exam, when added together). The final exam will cover the whole course.

The final grades will be tentatively calculated as follows. We reserve the right to change this grading scheme in case some unforeseen events come up beyond the instructors' control.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 (approximately bi-weekly) quizzes during the lecture times</td>
<td>35% - Best 5 out of 6 quizzes at 7% each; tentatively 40 minutes each</td>
</tr>
<tr>
<td>Final exam</td>
<td>25% - Tentatively 90 minutes long</td>
</tr>
<tr>
<td>Project (done in groups of 3)</td>
<td>20% - Broken into 4 parts: (1) 4%, (2) 6%, (3) 8%, and (4) 2% (demo readiness)</td>
</tr>
<tr>
<td>Clickers</td>
<td>7% (in-class activity only)</td>
</tr>
<tr>
<td>In-Class Exercises</td>
<td>8% (but submit by 7 AM the next morning)</td>
</tr>
<tr>
<td>Tutorials 6-9 (not on quizzes)</td>
<td>5% (T6, T7, T9 @ 1% each; but, T8 @ 2%)</td>
</tr>
</tbody>
</table>

- **Quizzes:** The 6 bi-weekly quizzes will be online on Canvas, during your scheduled lecture time. You will be responsible for material covered in the lectures, tutorials (a significant part of the quizzes will be based on them), and any textbook readings that support the lectures and tutorials. The quizzes are open book, and they are scheduled during the lecture time on these tentative quiz dates:

  1. Oct. 1 – E/R diagrams
  2. Oct 15 – Rest of DB logical design including normalization
  3. Oct. 29 – Relational Algebra
  4. Nov. 5 – SQL, part 1
  5. Nov. 12 – SQL, part 2
6. Nov. 26 – Data Warehousing

- **Final Exam**: The final exam will be online on Canvas, at a date and time scheduled by the University.

- **Project**: The project will be done in groups of 3. You can pick their own groups (you don’t have to be from the same lecture section or tutorial section). We can combine students to make groups of 3, as needed. We will use the self-enrolled groups feature in Canvas to facilitate this.

  o Groups of 2 are only allowed in extraordinary circumstances subject to prior approval from the instructors. Note that groups of 2 will not receive extra concessions (e.g., extra credit, extra time, smaller project scope, fewer deliverables, etc.)

  o For the project, you get to decide on the application domain (i.e., the type of business or organization being modelled). We will not allow certain common applications that are often used as examples. To that end, we will provide you with a “blacklist” of applications. You need to choose a different application, as those blacklisted topics are chosen too often, are found in textbooks, or they deal with applications or examples that we use in class.

  o Building a full database application from scratch allows you to control the process; instead of having the pieces decided for you. You must make all of the decisions by yourselves. Part of this process is that you will see how design decisions made at the beginning will affect your final project. You will be graded based on the result of your milestones, including a group demo and a self- and peer-assessment.

  o The TAs will provide support for projects using the Department’s Oracle software using either Java/JDBC or PHP/HTML. You may choose to use a different DBMS or software or platform, but you do so at your own risk—no support will be provided unless your TA knows the platform, and no excuses for late projects will be accepted. That said, we’ve had many successful projects over the years that did not use our defaults.

  o The TAs will be checking in with groups frequently to make sure that you are on track, and that each group member is contributing an approximately equal share of the work. Your TAs will be communicating with your group using Zoom.

  o After forming the groups, the project will be divided into 4 parts: (1) proposal and ER diagram; (2) logical design including schema, normalization, and DDL; (3) implementation (programming and interface); and (4) demo followed by a brief self- and peer-evaluation.

  o **Project Milestone Dates:**
    - **Part 1**: Friday, Oct. 9, 11:59pm – Groups have been finalized; groups are working together; the application domain (project choice) has been finalized; and an ER diagram has been created for your application
    - **Part 2**: Friday, Oct. 23, 11:59pm – Definition of relations and SQL DDL, normalization, proposed queries in English (it’s OK to give some SQL if you want, but you must explain the queries, and make sure they meet our constraints)
    - **Part 3**: Friday, Nov. 20, 11:59pm - DBMS tables are created, loaded, and queried; programming done; all deliverables submitted; prepare for demo next week
    - **Part 4**: Demo window between Nov. 23 and Nov. 30

  o **Submission Rules for Milestones, Parts 1-3:**
• Submissions will not be accepted 48 hours after the due date and time – a grade of 0 will be assigned for that milestone
• Submissions will be subject to a 25% deduction per portion of a day late (i.e., deduction applies whether the delay is 15 minutes late or 23 hours late).
  • The 25% deduction is calculated based on the full value of the project. For example, if a deliverable is worth 20 points and is handed in a day late, a 5-point deduction will be applied.

  o Submission Rules for Milestone, Part 4:
    • No late submission will be accepted. A group member who is absent for the demo will be given 0 points for his/her part of Milestone 4 unless acceptable documentation supporting the absence is provided within 2 days of the demo.
    • We will provide more project details on Canvas.

• Clickers: Marks will be based on participation only, and marks will only be available during the scheduled class times. We will automatically count only the best 80% to allow for Internet problems, sickness, doctor or dentist appointment, family emergency, funeral, fire alarm, accident on Broadway, stressful day, etc.

  o If your quiz/exam grades are higher than your clicker grade, we will substitute your overall weighted average quiz/exam grade.

  o We will use iClicker Cloud (also known as iClicker REEF). It allows you to respond to clicker questions with either a mobile device or a computer. It is free. Here are the instructions for students:

    https://lthub.ubc.ca/guides/iclicker-cloud-student-guide/

When you register for iClicker Cloud, and you connect your registration to Canvas, then Canvas will automatically pick up your scores.

• In-Class Exercises: The in-class exercises will be assigned during the scheduled class times. Again, we’ll take the best 80% of the days to allow for the odd missed class. The in-class exercises will be marked on a 0-1-2 point scale for effort and completion—not necessarily for the correct answers. These will be handed in, on Canvas, by 7 AM PST on the morning after your lecture.

  o We might tweak the percentages for the clickers and in-class exercises depending on how many of each we do, and what kind of unexpected technical issues may occur.

  o You can only claim points for your own section’s clickers and in-class exercises because we’ll be recording the clicker responses separately for the classes; some of the questions may be specific to each class; and there may be different numbers of questions for each class—not to mention that one class might be slightly ahead of, or behind, the other.

• Tutorials: Tutorials will not be graded (except for Tutorials 6-9, which will be worth a small number of marks, but won’t appear on any of your 6 quizzes). The tutorials are designed to promote your learning, and therefore to help you prepare for your quizzes. Your TAs will help you with questions that you have about the tutorials.

• Tentative Tutorial Schedule – Tutorial #, Starting the Week of …
1. Sept 21 ER diagram on a car rental application: “SuperRent”
2. Sept 28 Logical DB design for SuperRent
   - Keys, SQL DDL, foreign keys
3. Oct 5 Logical DB design, cont.
   - Normalization
4. Oct 12 Relational Algebra
5. Oct 19 SQL
6. Oct 26 Java/JDBC (this programming tutorial may also be useful for your project, and you’re welcome to do it ahead of time to check its suitability)
7. Nov. 2 PHP and Oracle, PHP and MySQL (may also be useful for your project)
   [Nov. 9 is during Remembrance Day holiday/week; no tutorials are scheduled]
8. Nov. 16 SQL Server and Data Warehousing
9. Nov. 23 Datalog
   - Note that the following week, the 4 Friday tutorials cannot meet since the term ends on Thursday. This is why we have Nov. 23-27 as the last week.

4. Lectures, Holidays, and Other Dates of Interest
   - Lectures start on Thursday, September 10 because Tuesday, September 8 is Imagine Day (no undergraduate classes).
     - **Section 101 Lectures (Raymond):** Tuesdays and Thursdays from 15:30-16:50
     - **Section 102 Lectures (Ed):** Tuesdays and Thursdays from 17:00-18:20
   - The **add/drop deadline** is Monday, September 21, 2020. You can drop the course on or before this date without getting a ‘W’ (for “withdrawal”) on your official transcript.
   - The **final withdrawal deadline** (i.e., the last day to get a ‘W’ for the course) is Friday, October 30. Beyond this date, you will get a numeric grade for the course.
   - The holidays for this term are as follows (but note that our lecture times are not impacted):
     - Monday, October 12—Canadian Thanksgiving Day
     - Wednesday, November 11—Remembrance Day
   - **Classes end** on Thursday, December 3.
   - The **final exam period** runs from Monday, December 7 to Tuesday, December 22.

5. Quizzes and Final Exam

Each quiz will be open book and open notes with no calculators allowed. We will only count your best 5 out of 6 quizzes. If you cannot write an exam due to Internet problems, sickness, doctor or dentist appointment, family emergency, funeral, accident on Broadway, stressful day, etc., then we will use this as your dropped quiz. You do not have to provide documentation for us. Normally, we count all midterms/quizzes during a course, but we are assuming that everyone will have some kind of a personal situation during the term, and by taking the “best 5 out of 6” we will save everyone a bunch of time, including needless documentation and e-mails going back and forth.
Grading errors on the quizzes must be reported within 5 days of when the quiz grades are released. To submit a regrading request, contact your instructor. You will need to supply your name, student number, and the specific reason why a regrade is necessary. Note that vague reasons such as “I think my ER diagram deserves more than 2 out of 5 points” or “Please regrade questions 4 to 7” is not sufficient. Regrade requests are not an opportunity for you to argue about the grading scheme. They are a way for you to address situations where the grading scheme was applied incorrectly to your quiz.

If you cannot write the final exam, then you must provide documentation (e.g., a doctor’s note) to your home Faculty office. For example, if you are in Science, then it will be the Faculty of Science; if you are in Engineering, then it will be the Faculty of Applied Science; and similarly for Arts, Commerce, etc. You will write an exam at a future date determined by the University; usually, this is during the deferred exam period in the summer (e.g., late July or early August 2021)—or during Term 2’s final exam period in April 2021. Important note: Your home faculty office may not allow you to write a deferred final exam (even if you have a doctor’s note) if your term work is incomplete (e.g., missing quizzes, missing classes, or incomplete project work).

6. **Tutorials** (sometimes referred to as “Labs”)

The TAs will conduct these online using Zoom. The tutorials will be a hybrid of office hours plus a short lesson or a set of instructions. Sometimes your weekly “tutorial” is more along the lines of a traditional tutorial; and at other times, it is more along the lines of a lab. It may also provide a chance for you to ask questions like you would in an office hour. You may need to do some pre-reading or preparation for your tutorial because we probably won’t be able to cover all the contents in class; and even if we come close, your tutorial might be scheduled in advance of the corresponding lecture. Be sure to do the tutorial, in order to prepare for your quizzes. We anticipate that the quizzes will line up with material that you will have learned in your tutorials.

Be sure to register for one 50-minute tutorial section. Tutorials are held every week (except for Thanksgiving Day and Remembrance Day) starting on Monday, September 21:

<table>
<thead>
<tr>
<th>Tutorial Section</th>
<th>Day of Week</th>
<th>Time</th>
<th>Room</th>
<th>Max. # of Students</th>
<th>TAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1P</td>
<td>Monday</td>
<td>15:00-15:50</td>
<td>online</td>
<td>36</td>
<td>TBA</td>
</tr>
<tr>
<td>T1N</td>
<td>Monday</td>
<td>18:00-18:50</td>
<td>online</td>
<td>36</td>
<td>TBA</td>
</tr>
<tr>
<td>T1C</td>
<td>Tuesday</td>
<td>13:00-13:50</td>
<td>blocked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1D</td>
<td>Tuesday</td>
<td>14:00-14:50</td>
<td>online</td>
<td>36</td>
<td>TBA</td>
</tr>
<tr>
<td>T1A</td>
<td>Wednesday</td>
<td>12:00-12:50</td>
<td>online</td>
<td>36</td>
<td>TBA</td>
</tr>
<tr>
<td>T1B</td>
<td>Wednesday</td>
<td>13:00-13:50</td>
<td>online</td>
<td>36</td>
<td>TBA</td>
</tr>
<tr>
<td>T1E</td>
<td>Wednesday</td>
<td>16:00-16:50</td>
<td>online</td>
<td>36</td>
<td>TBA</td>
</tr>
<tr>
<td>T1G</td>
<td>Wednesday</td>
<td>18:00-18:50</td>
<td>online</td>
<td>36</td>
<td>TBA</td>
</tr>
<tr>
<td>T1H</td>
<td>Friday</td>
<td>13:00-13:50</td>
<td>online</td>
<td>32</td>
<td>TBA</td>
</tr>
<tr>
<td>T1K</td>
<td>Friday</td>
<td>14:00-14:50</td>
<td>blocked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1M</td>
<td>Friday</td>
<td>15:00-15:50</td>
<td>blocked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1R</td>
<td>Friday</td>
<td>16:00-16:50</td>
<td>online</td>
<td>32</td>
<td>TBA</td>
</tr>
</tbody>
</table>

(There is no T1F tutorial.)
7. Textbook (Required) and zyBooks (Optional)


This is a very good textbook. We will be following it closely. It is also used for CPSC 404. You can buy it in electronic or hardcover format. Please avoid pirated copies. If you want an electronic copy, you can purchase the complete e-book or just the chapters needed for CPSC 304. A few years ago, this book costed over $200, but the publisher has greatly cut the price of the book at the UBC Bookstore: as of September 2, 2020, it is $107 + 5% GST. The book is much more expensive at Amazon.

To purchase an e-book, the publisher has given us these instructions:

1. Go to https://create.mheducation.com/shop/
2. Choose Canada as the country, then search for and select the book by Title, ISBN, Author, or State/School: (ISBN is easiest)

   ISBN: 9781307619324
   Title: Database Management Systems (This is the short e-book version with only the CPSC 304 chapters. It should say $50.71 USD, Selected Chapters, and CPSC 304 on the order. It has 386 pages. Double-check it to make sure that you’re purchasing the CPSC 304 one.) You’ll need to add 5% GST and then about 35% for the current exchange rate (e.g., 31% official rate + standard 4% foreign exchange fee for most credit cards).

   ISBN: 9781307620092
   Title: Database Management Systems (This is the complete book in e-book format. It should say $142.66 USD. It has 1,078 pages.)

3. Add the book to your cart and pay using a credit card or access code.
   - Purchasing a book using a credit card - PDF
   - Purchasing a book with an access code - PDF

Depending on the COVID-19 situation, copies of the physical textbook are on reserve for CPSC 304 and 404 at the CS Reading Room. All students can use the Reading Room. Check the website for their hours and their book availability during COVID-19:

- CS Reading Room: https://www.cs.ubc.ca/our-department/facilities/reading-room/course-reserves

If you want additional reference material, then any book on database systems that has been published in the past 20 years should be fine, providing it deals with relational database systems and the topics described on this outline. One such book—and we will use some material from it in class—is the following (there is a copy on reserve in the CS Reading Room):


zyBooks (online book with exercises, optional)
Lastly, a really good online resource and practice tool is the zyBooks interactive course called *Database Systems with SQL* which we reviewed in Summer 2020. Although they use a different entity-relationship diagram notation than we do, and they omit the topics of Relational Algebra, Datalog, functional dependencies, data mining, and some of our content on data warehousing, they do a very good job covering database concepts, database design, SQL, and MySQL (including programming). They have lots of online, interactive practice questions and examples that you may be interested in, including SQL. They also have a very nice introduction to NoSQL, Big Data, MySQL, and MySQL programming interfaces—and these may be helpful with your project or your co-op term. The cost for this online book/course is $39, and you can get some good practice with it. It’s worth checking out, but it is optional. Here are the details:

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: UBCCPSC304Fall2020
3. Subscribe

8. **Canvas**

Canvas is UBC’s standard Learning Management System. We will use Canvas to host most of the online materials, including lectures and quizzes, for this course. Canvas allows us to post lecture slides, pre-recorded lectures, recorded lectures, handouts, practice exercises, solutions, grades, group memberships, tutorials, project submissions, etc. for this course.

Please download the current slides, and view the short recordings (if any) that your instructor has made for the next lecture, before coming to class. We will try to make a PDF version of the slides available by the day before your lecture. Please be advised that you are responsible for all material presented in the lectures, and in the appropriate parts of the textbook, assignments, and tutorials. We intend to run the lectures with a mix of interactivity: clicker questions and in-class exercises. We also want you to be prepared for class by viewing selected screencasts beforehand.

UBC’s IT Services group is hosting Canvas. If you don’t already have a Campus-Wide Login (CWL) account, you should visit https://it.ubc.ca/services/accounts-passwords/campus-wide-login-cwl to get one. All registered students for CPSC 304 who have a CWL ID will automatically have their CWL ID linked to the CPSC 304 Canvas pages. If you are taking other courses that use Canvas, then your CWL ID will be linked to those courses, too.

9. **Piazza’s Discussion Board**

**Piazza** will host our course discussion board (also called a “bulletin board”), and it is *required reading* for this course. You should read it at least once per day. We won’t be posting slides or exams or solutions there. We will limit Piazza to a discussion board.

Questions about the CPSC 304 course contents (e.g., lecture, textbook, assignments, Web pages) can be posted on the Piazza discussion board, but please check to make sure that your question hasn’t already been asked or answered. In previous terms, students have asked the same questions over and over. Remember, you can always re-read Piazza notes that you’ve already seen, and you can search for keywords within Piazza.
The TAs and instructors will be monitoring and responding to questions daily, but students are also encouraged to respond to each other’s postings and questions. *Do not post code or solutions* on the bulletin board (other than perhaps small fragments, if necessary). Problems with Canvas itself (i.e., other than with the content of the CPSC 304 Web pages) should be directed to help@itservices.ubc.ca. Problems with undergrad accounts, servers, or hardware problems in the lab should be directed to help@ugrad.cs.ubc.ca.

If you encounter any technical problems with Piazza, or if you have feedback for the Piazza developers, you can e-mail them at team@piazza.com.

**Piazza registration instructions** are found on Canvas – click on the Piazza tab on the LHS. Piazza does *not* automatically use your Canvas-associated e-mail as your Piazza e-mail. When signing up for Piazza for the first time, you can choose what e-mail address to use, and you can change it anytime.

- First, a UBC legal/privacy disclaimer: “If you decide to use Piazza in your course, you are required to use the Canvas integration [done] to ensure that its use is compliant with the Freedom of Information and Protection of Privacy Act (FIPPA). The Canvas integration link directs students to the proper Piazza course and masks the student’s identity before it is sent to the site. To comply with BC privacy legislation, students will need to create a Piazza account and agree to the terms of use the first time they use the tool. While Piazza adheres to strict U.S. privacy regulations (FERPA), UBC cannot guarantee the security of student’s private details on servers outside of Canada. Students should be reminded to exercise caution whenever using personal information, and that they may use a pseudonym to protect their privacy if they have concerns.”

- If you choose to register for Piazza with your CPSC department e-mail address of the form aaaa@ugrad.cs.ubc.ca or bbbb@cs.ubc.ca then you don’t have to do anything else.

- If you are using any other e-mail address and it does not contain your name, then you need to fill in a short survey to let us know what it is; otherwise, we won’t know who you are. For example, if you pick a pseudonym (i.e., a fake name—but please *don’t* pick the name of a celebrity, sports star, other student, etc.), or if you are using an e-mail address without your name in it, such as your more-private cccc@students.cs.ubc.ca or dddd@alumni.ubc.ca, then you need to fill out the short, Piazza survey (it takes about one minute to fill out), which is hosted at UBC and is found at:
  - [https://ubc.ca1.qualtrics.com/jfe/form/SV_9oVqCPG09ElP67P](https://ubc.ca1.qualtrics.com/jfe/form/SV_9oVqCPG09ElP67P)
  - This will allow the instructional staff to know who you are, and verify that you are enrolled (or waitlisted) in CPSC 304.

- Most students seem to be fine with using their own name or CS alias (@ugrad) rather than a pseudonym, but Canadian privacy law requires us to give you the choice.

You’ll find our class’s **Piazza discussion board** at: [https://piazza.com/ubc.ca/winterterm12020/cpsc3041011022020w](https://piazza.com/ubc.ca/winterterm12020/cpsc3041011022020w)

The CPSC 304 **access code** for Piazza will be found on Canvas, and will also be mentioned in class.
Canvas cannot automatically handle waitlisted students; so, either we will have our tech staff enroll you as a guest on Canvas, or we may duplicate some course material (such as the lecture slides) on Piazza. After the drop deadline, unregistered students will be dropped from Canvas and Piazza.

10. Oracle DBMS

We will use Oracle as our default DBMS. It is hosted by the Department of Computer Science. Oracle’s command line interface for entering and executing SQL statements is called SQL*Plus. A popular programming environment that allows embedded SQL is Java/JDBC. However, you are free to use MySQL and PHP for your programming project. Some tutorial notes are available for all these products. Actually, you can use any DBMS and programming language that you wish, providing your group members agree; but please note that we can’t support everything, so, your team is on its own for support for most alternative products. Some of the TAs might be familiar with other DBMSs, but don’t count on it.

11. Tentative Topics and Learning Goals

<table>
<thead>
<tr>
<th>Topic</th>
<th>Subtopics</th>
<th>Textbook Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Database Objects, DBMS Models, Abstraction Levels, System Structure, DBA Tasks</td>
<td>Chapter 1</td>
</tr>
<tr>
<td><strong>Database Design</strong> (Data Modeling)</td>
<td>Entity-Relationship Diagrams, Logical Database Design, Formal Structure of the Relational Model, SQL’s Data Definition Language, Keys, Integrity Constraints including Referential Integrity</td>
<td>Chapters 2 &amp; 3</td>
</tr>
<tr>
<td><strong>Schema Refinement and Normalization</strong></td>
<td>Functional Dependencies; Redundancies; 1NF, 2NF, 3NF, &amp; BCNF Normal Forms; Decomposition, Lossless-Join, and Synthesis</td>
<td>Chapter 19</td>
</tr>
<tr>
<td><strong>Formal Query Language</strong></td>
<td>Relational Algebra</td>
<td>Chapter 4</td>
</tr>
<tr>
<td><strong>Structured Query Language (SQL)</strong></td>
<td>Basic Queries, SQL’s Data Manipulation Language, Set Operations, Null Values, Ordering &amp; Aggregation, Modification, Embedded vs. Dynamic SQL, Cursors, JDBC</td>
<td>Chapter 5 &amp; 6</td>
</tr>
<tr>
<td><strong>Query Languages (cont.)</strong></td>
<td>Datalog</td>
<td>Chapter 24</td>
</tr>
<tr>
<td><strong>Data Warehousing</strong></td>
<td>Introduction to Data Warehousing and OLAP; the ETL Process; Star vs. Snowflake Schemas; Aggregation and Hierarchies; Data Cubes; Microsoft’s SQL Server and SQL Server Analysis Services; View Selection and Materialization</td>
<td>Chapter 25</td>
</tr>
<tr>
<td><strong>Data Mining</strong></td>
<td>The KDD Process (Knowledge Discovery in Databases), Frequent Itemsets, Association Rules, and maybe Frequent Pattern Trees (FP-Trees)</td>
<td>Chapter 26</td>
</tr>
</tbody>
</table>
Topic-level learning goals are useful for self-evaluation and preparing for exams. The lecture slides will contain the topic-level learning goals. These are useful for self-evaluation and when studying for exams. They also give you (and future employers) a more detailed view of the course’s contents than a typical calendar entry or a list of topics would.

12. Collaboration/Cheating Policies (Academic Misconduct)

First, here is the University Policy on Academic Integrity:

“Academic honesty is essential to the continued functioning of the University of British Columbia as an institution of higher learning and research. All UBC students are expected to behave as honest and responsible members of an academic community. Breach of those expectations or failure to follow the appropriate policies, principles, rules, and guidelines of the University with respect to academic honesty may result in disciplinary action.”

[http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,286,0,0#15620](http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,286,0,0#15620)

A more detailed description of academic integrity, including the University’s policies and procedures, can be found in the UBC Calendar at:

[http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,0](http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,0)

Important note: Because we have two back-to-back sections, people who have taken a quiz or exam in one section must keep the content confidential, including not posting to Piazza, until the end of that day. You must not collaborate with others in any way when taking a quiz or exam. Penalties could include a zero for the course and a suspension from the university. Even for non-exams (e.g., project, clickers, in-class exercises), you cannot use a friend or tutor to do your work.

Don’t look for loopholes to cheating. Use common sense and don’t cheat.

That said, we believe that you will learn at least as much from each other as you will learn from the teaching staff. Therefore, we want to encourage collaboration on some activities without compromising a fair grading scheme (as described in the Department’s policy on collaboration).

In most instances, we will follow the “Gilligan's Island” (GI) rule of collaboration. That means that you can collaborate as much as you want with whomever you want subject to three restrictions:

1. You must acknowledge everyone with whom you collaborated on your submission.
2. You may not take a record of any sort away from the collaboration. (So, erase all whiteboards, delete e-mails and text messages and other electronic communication, recycle paper, etc.)
3. You must spend at least an hour after the collaboration and before working on your own submission watching Gilligan’s Island or performing the mindless intellectual equivalent. In other words, do something so distracting or silly. Then, if you can still remember what you collaborated on, then you must have learned it.

The exceptions to this rule are:
• On the project, you may collaborate with your group. However, you will be asked to define how the collaboration worked. Note that collaboration with people outside your team still falls under full GI rules.
• Collaboration with the instructor and TAs (including discussion board posts) is fair game.

**You may not collaborate at all on the quizzes, the final exam, or any work that we explicitly state must be done individually.**

You may be unable to destroy some records you create during collaborations (e.g., posts to the Piazza discussion board). In such cases, you should try to follow the spirit of the rule: exercise caution in the information you share (e.g., don't provide answers to problems but rather discuss similar problems or describe concepts).

Be sure to respect copyright rules. Finally, **use common sense and don’t cheat**. For example, carefully memorizing someone else's SQL query and then regurgitating it an hour later is still plagiarism and cheating.

13. **Other Important Notes and Links**

**Equity & Inclusion**

We aim to build a community where equity and inclusion are embedded in all aspects of campus life. If you require assistance related to issues of equity, discrimination or harassment please contact the Equity & Inclusion Office:

Brock Hall, Room 2306
604-822-6353
info@equity.ubc.ca
https://equity.ubc.ca

**Health & Wellness**

Health and wellness, both physical and mental, are important for academic success. If you are having difficulty with your studies, or feel overwhelmed, or are experiencing distress, UBC provides a number of resources to help. You can also find tips on how to approach a friend who may be experiencing difficulties. For more information, please visit:

https://students.ubc.ca/health-wellness

If you are seriously ill or are dealing with a significant issue (e.g., the death of a close family member) that may prevent you from performing well in your courses, please contact your instructor or your home faculty office, as soon as possible.

If you face similar circumstances for your final exam, please talk to your Faculty advising office before you take the exam. They will assist you in determining an appropriate course of action. Please note that different Faculties handle requests for academic concession in different ways. Links to further information for the Faculties of Arts, Science and Commerce are provided below:
Centre for Accessibility (formerly Access & Diversity)

The Centre for Accessibility provides support for students with disabilities, chronic medical conditions, and other challenges. If this applies to you and you require academic accommodations to meet course objectives, please contact the Centre for Accessibility:

Brock Hall, Room 1203.
604-822-5844
accessibility@ubc.ca
https://students.ubc.ca/about-student-services/centre-for-accessibility

AMS Safewalk

If you find yourself in a situation where you do not feel safe travelling alone across campus at night and would like someone to accompany you, please contact the AMS Safewalk program by:

- Calling 604-822-5355
- Using a campus Blue Phone and asking for Safewalk
- Dropping by their office in the Nest, Level 1, Room 1314

See also http://www.ams.ubc.ca/services/safewalk/

Finances for Technology

If you have financial difficulties acquiring the technology you need to participate fully in this course, please contact your Enrolment Services Advisor:
https://students.ubc.ca/about-student-services/enrolment-services-advisors

Lastly, the Faculty of Science maintains a list of resources that students might find useful:
https://science.ubc.ca/students/resources/

14. Potential Restrictions for International Students’ Online Learning Experiences as a Result of Remote Learning

UBC’s senior advisors asked us to include a statement on learning and academic freedom in UBC courses:

“During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical
controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0 for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: http://academic.ubc.ca/support-resources/freedom-expression”

15. Acknowledgements

Slides and other course materials are based on previous materials from others, built up over the past 20+ years, especially the authors of the book (Raghu Ramakrishnan and Johannes Gehrke) and contributors (in alphabetical order): Phil Bernstein, Alon Halevy, Hazra Imran, Hassan Khosravi, Ed Knorr, Laks Lakshmanan, Raymond Ng, Rachel Pottinger, George Tsiknis, Jennifer Widom, Steve Wolfman, and Jessica Wong. Hopefully, we haven’t left anyone out. Thanks, folks