



**Course Name:** Introduction to Databases

**Course Number:** CS 340

**Credits:** 4

**Instructors:**

- Danielle Safonte ([safonted@oregonstate.edu](mailto:safonted@oregonstate.edu))
- Dr. Michael Curry ([currym@oregonstate.edu](mailto:currym@oregonstate.edu))

**Teaching Assistant Name and Contact Info:** TBD (Check Canvas Syllabus Page for most recent information).

## Course Description

Design and implementation of relational databases, including data modeling with ER or UML, diagrams, relational schema, SQL queries, relational algebra, user interfaces, and administration.

## Prerequisites or Corequisites

Prerequisite: [CS 290](#).

A minimum grade of C is required in [CS 290](#).

Enrollment is limited to students with a program in Computer Science (307).

Enrollment limited to students in the College of Engineering college.

## Communication

### Ed Discussion

Ed Discussion should be used for *all* questions seeking technical help, conceptual help or assignment clarification. Essentially if it is any sort of information that may benefit other students, it should be posted to Ed Discussion. If there is a question that gets ignored for longer than 48 weekday hours you can email the instructor and TA and ask them to follow up with it. It may have just gotten missed. Look below for the Code Sharing policy.

### Teams

The Teams channel is the primary mode of conducting office hours by the TAs unless specified. At the beginning and end of each office hour session (whether or not it is held using Teams), the TA would put up a message on the Teams channel informing so. If you are sharing code on Teams, look below at the Code Sharing policy.

### Email

Any email sent to the instructor about this course **must** originate with an OSU-issued email account. Email using the OSU-issued email addresses is the only way we can be certain of your identity (and vice versa). Email should be used for anything that contains sensitive information. So if you have a question about a grade or want to request an extension, do so via email. All emails should have CS340 in the subject so that they get priority in my inbox. In addition, every time you reply to an email thread it knocks it to the back of the queue because email gets

processed in order of the most recent emails last. So be careful sending multiple replies as it might bump you back in the queue.

### Canvas Comments

Canvas comments should *only* be used by students to add commentary *prior* to grading and by myself and the TAs to give feedback. If you need to communicate something to myself or the TAs after your assignment has been graded do so via Email. We *will not* see comments posted to your assignment submission after it has been graded.

### Canvas Mail

The TAs and myself try the best we can to monitor Canvas email. But there are less options to sort and filter mail via that system so there is a much higher likely-hood that we will miss things that get sent via Canvas mail. So I suggest you do *not* use it.

### TA Office Hours

The primary mode of office hours by the TAs, unless otherwise indicated, will be the Teams channel. At the beginning and end of each office hour, the TAs will inform on the above Teams channel.

### Questions about grades

The TAs will grade all your submissions, unless otherwise noted. If you have any concerns, contact **the grader for that specific assignment via email** as noted in the Where to go for help?. Any concerns about grades should be communicated within 7 days of receiving the grade.

Times are in PDT.

Time in PST	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Prof. Michael Curry	9:00 am – 10:00 am					
Prof. Danielle Safonte	8:00 am - 9:00 am			8:00 am - 9:00 am		

### Contacting the TAs - Teams

To contact Professors or TA, please send a direct message on Teams.

### Contacting the Instructor

Office hours with the Instructor are available by appointment.

You can email me at [safonted@oregonstate.edu](mailto:safonted@oregonstate.edu) or [currym@oregonstate.edu](mailto:currym@oregonstate.edu) if you want to schedule a time on Teams. I am very active on Teams and by email so you can usually reach me there pretty quickly.

All technical questions, as well as questions about assignments, quizzes, or anything that you learn in class (unless they are related to your grade), should be posted in Ed Discussions so that all students can benefit from them.

### OSU CS Tutoring

Tutoring link: <https://engineering.oregonstate.edu/current-students/academic-support>

## Time Expectations

This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits.

## Technical Assistance

If you experience any errors or problems while in your online course, contact 24-7 Canvas Support through the Help link within Canvas. If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-8787 or visit the [Service Desk](#) online.

## Learning Resources

*Relational Database Design and Implementation* by Jan L Harrington, 2016 Edition is the recommended textbook for CS340-400.

A rough mapping of the current weeks to the chapters of the book is given below:

- Week 1
  - Chapter 1 - pages 3-26
- Week 2
  - Chapter 3 - pages 47-53
  - Chapter 4 pages 55-88
  - Chapter 5 pages 89-105
- Week 3
  - Chapter 6 pages 106 – 140
  - Chapter 10 pages 182- 190
  - Chapter 11 pages 191 – 213
  - Chapter 16 pages 323 - 350
- Week 4
  - Chapter 17 pages 355 – 373
  - Chapter 19 pages 399 - 411
- Week 5
  - Chapter 7 pages 141 - 151
- Week 9
  - Chapter 24 pages 496 – 507

This book is available for free *online* for all the OSU students at the [OSU Library](#)

If you decide to use Python for web development in this course, the [Flask user guide](#) should be good enough.

If you decide to use node.js for web development in this course, the [Node.JS](#) guide should suffice.

**Note:** Check with the OSU Beaver Store for up-to-date information for the term you enroll ([OSU Beaver Store website](#) or 800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.

## Measurable Student Learning Outcomes

At the completion of the course, students will be able to...

1. Describe the difference between a relational database and a flat file
2. Model a moderately complex data set by using an ER or UML diagram, and derive a relational schema from that diagram
3. Create a relational database from a relational schema
4. Create multiple indices in a relational database, and explain when and why such indices are appropriate
5. Formulate SQL statements for data manipulation
6. Formulate simple queries in relational algebra by using projection, selection, product, and join operations
7. Describe the components and interfaces of a Web-based database system
8. Design and implement a Web-based relational database system, using one or more scripting languages (e.g., PHP) and an open-source database development system (e.g., MySQL)

## Evaluation of Student Performance

### Letter Grade

Grade	Percent Floor
A	92
A-	90
B+	87
B	82
B-	80
C+	78
C	72
C-	70
D+	68
D	62
D-	60
F	0

### Grading Scale

The final grade will be computed using a weighted average according to the table above and the weighting below.

### *Note about Partial Credit*

In general assignments are not graded such that each piece is worth a fixed portion of the total credit for the assignment. For example, if 40% of the program is non-functional that generally indicates that there is some important concept that has been missed. If that is the case, then the grade will be a 0. You can then resubmit it to earn up to 70% of the assignment credit, but the revised submission must be entirely functional.

### **Grade Weighting**

- Quizzes - 15%
- Assignments - 25%
- Participation - 20%
- Project - 40%

### **Course Content**

<b>Week</b>	<b>Topic</b>	<b>Due Monday</b>	<b>Due Thursday</b>
1	Intro/Tools/SQL Practice		<ul style="list-style-type: none"><li>• (Syllabus Quiz)</li></ul>
2	Relational DB & Design	<ul style="list-style-type: none"><li>• Activity 1</li><li>• Activity 2</li><li>• Activity 3</li></ul>	<ul style="list-style-type: none"><li>• Database intro quiz</li><li>• ER Concepts Quiz</li><li>• Using ERD &amp; Schema Quiz</li></ul>
3	Relational Algebra, SQL Intro	<ul style="list-style-type: none"><li>• Project Step 1</li><li>• Draft (Proposal, Outline, ERD)</li></ul>	<ul style="list-style-type: none"><li>• Relational Algebra</li><li>• Quiz</li><li>• Project Step 1 Review</li><li>• Activity 1/2/3 –</li><li>• Gradescope Assignment</li></ul>
4	Intersection tables & SQL JOINS	<ul style="list-style-type: none"><li>• Quiz: Basic SQL (On Gradescope)</li><li>• Project Step 1 Final Version (Group / On Canvas)</li></ul>	<ul style="list-style-type: none"><li>• Activity 4 –</li><li>• Gradescope Assignment</li><li>• Activity 5/6 -</li><li>• Gradescope Assignment</li></ul>
5	Database Normalization	<ul style="list-style-type: none"><li>• Intermediate SQL Assignment (on GradeScope)</li></ul>	<ul style="list-style-type: none"><li>• Project Step 2 Draft: Normalized Schema + DDL with Sample Data (Group, on Ed Discussions)</li></ul>
6	Design Project HTML UI	<ul style="list-style-type: none"><li>• Advanced SQL Assignment (on GradeScope)</li><li>• Project Step 2 Review</li></ul>	<ul style="list-style-type: none"><li>• Project Step 3 Draft Version: Design HTML Interface + DML SQL (Group / On Ed Discussion )</li></ul>
7	Project Development	<ul style="list-style-type: none"><li>• Project Step 3 Review</li></ul>	<ul style="list-style-type: none"><li>• Project Step 3 Final Version: Design HTML</li></ul>

Week	Topic	Due Monday	Due Thursday
			Interface (Group / On Canvas)
8	Continue Project Development	<ul style="list-style-type: none"> <li>Transactions EC</li> </ul>	<ul style="list-style-type: none"> <li>Project Step 4 Draft Version: Implement CRUD for One Entity (Group on Ed Discussions)</li> </ul>
9	Analytical DBs and BI	<ul style="list-style-type: none"> <li>Project Step 4 Review</li> </ul>	
10	Finish Project & No SQL	<ul style="list-style-type: none"> <li>Analytical DB and BI Assignment</li> <li>Project Step 5 Review</li> <li>SLE Completion</li> </ul>	<ul style="list-style-type: none"> <li>Reflections on Learning Strategies used in CS 340</li> </ul>
Finals	Finals Week	<ul style="list-style-type: none"> <li>Project Step 6 (Portfolio Assignment)</li> </ul>	

## Course Policies

### Discussion Participation

Students are expected to participate in all graded discussions. While there is great flexibility in online courses, this is not a self-paced course.

### Communication Timelines

You can expect a response to emails within 48 weekday hours. So if you send an email at 8am on Monday, you should have a response by 8am on Wednesday. If you send an email at 10pm on Thursday, you should have a response by 10pm on Monday.

Do not expect communication on the weekends, though I do my best to look for urgent questions that are preventing you from making progress and answering them, even on the weekend. The more specific the question, the more likely you are to get help.

### Code Sharing

You will not get in trouble for sharing code on Ed Discussion or in Teams in order to solve problems. The communication guide actually mandates that you share portions of your code if you want to ask a good question. If you are worried that you are posting too much code, mark it private and ask me to review it. Note that this is a more permissive policy than the [standard policy for the program](#).

You will get in a great deal of trouble if you copy code without citing it. See the policy on plagiarism. Code from lectures is not your own, code from StackOverflow is not your own, code from the node.js documentation is not your own. If it is not your code you must cite it. If you cite

it, you must provide documentation in very great detail of what it is doing so that I know you understand the code you are using.

### **Late Work Policy**

**You must submit all assignments before the due date, even if it is incomplete!** However, if your submission is incomplete your grade maybe a Zero, unless you follow these instructions.

1. Notify the TA that you plan to resubmit it within **3 days** (you can notify them by email or in the Canvas comment with your submission).
2. If you submit a partial fulfillment of the requirements before the due date and then resubmit a revision within 3 days, your grade will reflect your final submission. If you do not resubmit within 3 days, your grade will reflect your original (potentially incomplete) submission.
3. **The exceptions to this** are project step **drafts**, draft **reviews**, extra credit assignments and the **final projectstep submission (the one that is due in the last week of the term!)**; these must be submitted on time and cannot be revised once the due date has passed.
4. **If you do not submit your first version before the due date, you will receive 0 credit.** Exceptions may be made for documented emergencies e.g. hospitalization.

### **Statement Regarding Religious Accommodation**

Oregon State University is required to provide reasonable accommodations for employee and student sincerely held religious beliefs. It is incumbent on the student making the request to make the faculty member aware of the request as soon as possible prior to the need for the accommodation. See the [Religious Accommodation Process for Students](#).

### **Guidelines for a Productive and Effective Online Classroom**

*(Adapted from Dr. Susan Shaw, Oregon State University)*

Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university's regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this online course, paying particular attention to the following:

- Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
- Read your posts carefully before submitting them.
- Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
- Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others

are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

### **Expectations for Student Conduct**

Student conduct is governed by the university's policies, as explained in the Student Conduct Code (<https://beav.es/codeofconduct>). Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

### **Academic Integrity**

Integrity is a character-driven commitment to honesty, doing what is right, and guiding others to do what is right. Oregon State University Ecampus students and faculty have a responsibility to act with integrity in all of our educational work, and that integrity enables this community of learners to interact in the spirit of trust, honesty, and fairness across the globe.

Academic misconduct, or violations of academic integrity, can fall into seven broad areas, including but not limited to: cheating; plagiarism; falsification; assisting; tampering; multiple submissions of work; and unauthorized recording and use.

It is important that you understand what student actions are defined as academic misconduct at Oregon State University. The OSU Libraries offer a [tutorial on academic misconduct](#), and you can also refer to the [OSU Student Code of Conduct](#) and [the Office of Student Conduct and Community Standard's website](#) for more information. More importantly, if you are unsure if something will violate our academic integrity policy, ask your professors, GTAs, academic advisors, or academic integrity officers.

### **Turnitin**

Your instructor may ask you to submit one or more of your writings to Turnitin, a plagiarism prevention service. Your assignment content will be checked for potential plagiarism against Internet sources, academic journal articles, and the papers of other OSU students, for common or borrowed content. Turnitin generates a report that highlights any potentially unoriginal text in your paper. The report may be submitted directly to your instructor or your instructor may elect to have you submit initial drafts through Turnitin, and you will receive the report allowing you the opportunity to make adjustments and ensure that all source material has been properly cited. Papers you submit through Turnitin for this or any class will be added to the OSU Turnitin database and may be checked against other OSU paper submissions. You will retain all rights to your written work. For further information, visit [Academic Integrity for Students: Turnitin – What is it?](#)

### **Statement Regarding Students with Disabilities**

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at



<http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

### **Accessibility of Course Materials**

All materials used in this course are intended to be accessible. However, resources available through external providers (i.e., YouTube, websites, etc.) may not fully comply with accessibility standards. If you require accommodations please contact [Disability Access Services \(DAS\)](#).

Additionally, Canvas, the learning management system through which this course is offered, provides a [vendor statement](#) certifying how the platform is accessible to students with disabilities.

### **Tutoring and Writing Assistance**

TutorMe is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Access TutorMe from within your Canvas course menu.

The Oregon State [Online Writing Support](#) is also available for students enrolled in Ecampus courses.

### **Academic Calendar**

All students are subject to the registration and refund deadlines as stated in the Academic Calendar: <https://registrar.oregonstate.edu/osu-academic-calendar>.

### **Student Bill of Rights**

OSU has twelve established student rights. They include due process in all university disciplinary processes, an equal opportunity to learn, and grading in accordance with the course syllabus: <https://asosu.oregonstate.edu/advocacy/rights>.

### **Ecampus Reach Out for Success**

University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about [resources that assist with wellness and academic success](#).

Ecampus students are always encouraged to discuss issues that impact your academic success with the [Ecampus Success Team](#). Email [ecampus.success@oregonstate.edu](mailto:ecampus.success@oregonstate.edu) to identify strategies and resources that can support you in your educational goals.

- **For mental health:**

Learn about [counseling and psychological resources for Ecampus students](#). If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

- **For financial hardship:**

Any student whose academic performance is impacted due to financial stress or the inability to afford groceries, housing, and other necessities for any reason is urged to contact the Director of Care for support (541-737-8748).

### **Student Learning Experience Survey**

During Fall, Winter, and Spring term the online Student Learning Experience surveys open to students the Wednesday of week 9 and close the Sunday before Finals Week. Students will receive notification, instructions, and the link through their ONID email. They may also log into the survey via MyOregonState or directly at <https://beav.es/Student-Learning-Survey>. Survey results are extremely important and are used to help improve courses and the learning experience of future students. Responses are anonymous (unless a student chooses to “sign” their comments, agreeing to relinquish anonymity of written comments) and are not available to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.