Hello and welcome to CSE 480. This video, we'll be talking a little bit about what the course is going to cover. We're going to spend a fair bit of time talking about the syllabus at different parts of the course, how the point come out, what is and isn't allowed, and talking a little bit about what's to come in this semester to come forward. Okay, so let's get started. Well, first off, hello, I'm Dr Dennis Phillips I'm a teaching specialist with CSE here at MSU. I and a group of TAs are going to be running this course. Please, if you have any questions, come ask questions. we'll have many hours of help room as well as help via Piazza. So, even though this is an online course where I'm not standing in front of you, there are lecture videos. Hopefully with the videos as well as links to other helpful content you'll be able to learn just as effectively, if not more.

So, what are we going to be covering? Well, this is a class called database systems and we're going to be talking a lot about databases for pretty obvious reasons. We'll be talking about how to use them, how they work, they're different parts. When, should you be using one type of database versus another and some of the more advanced topics of what to do to make your database scale to handle very large data or very particular use cases. It's going to be more than just how do you write SQL queries. We'll be talking a lot more than just that, but you'll see as we go along.
3. So why should you care about this class? Well, the primary reason I imagined is you need another three credit, 400 level class in order for you to get your degree. And if that's the only reason you're taking the class, I understand. But my goal is to motivate you to care about the material as well. So what is some of the reasons why you should care? Well, one thing that's really nice is databases really combined a lot of aspects that you've been learning in different classes. We'll learn a lot about all of the algorithm theory that you learned in your 331 class. We'll be learning about design patterns and how to apply those from 335. We will be talking about how to parse particular languages. For instance, if you've taken the compiler course, we combining a lot of different aspects that you'll learn in bits and pieces all together in one place, in a very practical purpose. Another thing is, by solving the projects, especially in this class, you'll face many of the same sorts of problems that you'll encounter if you are developing real software for a company. Let's say we'll be designing a project that takes place over multiple time periods building on previous work and ending up with a fairly complicated program involving thousands of lines of code. How do I write good code in order to continue working on it? Another big advantage and the reason why this class isn't just let's learn sequel is I want to teach you a much more fundamental understanding about how databases work, not just how to use them, but how do you use them effectively and what sort of trade offs you might have to make. So like when you learn how to write a loop in Python, that's great, but it's really important to understand, what makes some loops take longer than others? How should you be writing code if it's taking too long or it's using too much memory. We're going to be doing those same sorts of things for databases, which to be perfectly honest, are often, by far, the bottleneck in terms of optimization for most applications you'll ever work with. Often it's the databases that are the slowest part in part because they're made as fast as possible, but they're not magical. So being able to use databases effectively, that's to your benefit. Yeah, and I just want to warn you right now that this is a 400 level CSC class. This class doesn't focus on exams. This class focuses on projects and homework. If you're not as comfortable as
Python as you used to be, might take longer than you would like. So, make sure that you are not taking too many courses this semester. Make sure that you can set aside time from your work or whatever other things you have going on. so that you can work through the projects. They're worth doing, but they do take time. I just want to give you the warning up front and especially if your Python skill isn't a very good, now it'd be a really good time to go through some tutorials and make sure you're up to speed with them.

4. All right, so who am I? I kind of introduced myself at the very beginning. My name's Dennis Phillips. I'm a teaching specialist here. And what does that mean? It means that I actually don't do research. I do a little bit on the side, but my primary job is to teach and I hopefully that means that I can be a better teacher than perhaps some of the other professors here. but the very least I can, I'm devoting a lot more of my attention and time to it. So, I am here if you need help. And once again, Josh is just fine. I don't need to be called doctor or professor or anything like that. Okay.
5. Another thing to make special note of this, this is an online enabled course, meaning there aren't going to be lectures, meaning this website. Hopefully the way that you're watching this video, is how I'm going to be releasing all the materials to you. The videos you will be watching were produced by Dr Josh Naham and I would like to thank you for letting me use them. There is no textbook for this course and this is a synchronized course. So I may have many of the weeks laid out. In fact, if you look at the website right now, it has many weeks laid out from the previous year as the course goes on, I'm going to be revising that material. You're only expected to watch the current weeks videos and in fact trying to get ahead might be to your detriment as I may be replacing those videos with different content as we move through the semester. The other really important thing is this isn't the first time this course has been offered in this way and feedback that we've gotten from previous years is that although online courses are often really useful, you don't have to wake up in the morning to go to class. If you're busy, you can watch the videos at, at times, it's more convenient to you. However, it does take more discipline to get through the course. You need to set aside time to watch the videos, maybe re-watch them, you need to treat them like a lecture. If you take notes, when you go to a lecture, take notes while watching the videos, I don't have a way to force you to watch them. but if you come to help room and it's clear, Hey, you don't know what's going on. You haven't learned the concepts. it's not our job to teach you in help room or to teach you, you know, in a personal appointment. It's your job to ask for help if you need it. and that involves watching the videos or going to any of the secondary sources that we link to for, you know, if the video doesn't make sense.
6. All right, so how does the grades work in this class? Okay, so the most important part of the class are the projects. It's worth half the point of your final grade. Another 20% are going to be homeworks. These are gonna be weekly homeworks. There'll be at least 12 of them. And what we'll do is we'll take the top 10 highest scoring homeworks and count those. So basically it means you get at least your lowest two homeworks will be dropped. And there's also an exam, that's going to take place sometime in, a two thirds the way through the semester. and we'll be talking about that as well. Projects.
7. Okay. So most of the projects in the class, except for the first one in the last one, we'll be building a, an increasingly complex database management system. This is a program that will respond to SQL queries by either adding or changing data within itself or giving back responses to queries like the, you know, find all of the men who are older than 17 in this store, in this database, things like that. It's a really interesting project because over time you have to implement it, you know, joins, you have to implement transactions and things like that in, pure Python. The important thing to know is all of these projects must be done independently. Now what does that mean? It means you need to be writing and understanding every line of code that you submit yourself. This applies to the projects and the homeworks as well. The important thing to know is you may ask questions on Piazza or ask questions of other students. However the line is you're not ever allowed to share code with other people or let other people see your code other than of course, myself and the TAs. So if you have a bug that you just can't figure out, come to help room, ask one of us for help. If, if I find out that another student viewed your code or if you saw some other students' code, that's an academic dishonesty violation. If you don't come and say, Hey, I made a mistake, I accidentally sell somebody's code and we have to find out through things like plagiarism detection and things like that, you will fail the class. This is a 400 level class. There's not any warning period or anything like that. You will fail a class. So emphasizing that now, because every year we've had to fail three or four, sometimes more students from each of my classes for cheating. And I want to make it really clear, really clear up front. Please don't do so. We'll talk about that more in a little bit. Another important thing to note is that projects are always due at 10:00 PM on their due date. Not midnight. It's always 10:00 PM and it's 10:00 PM on the dot. If it's at 10:00 PM and one second, it's late. Now fortunately projects have a late period, meaning you can, if you miss your deadline and if you submit it within 24 hours of the deadline, you'll be losing 10% of the, projects grade. And if you turn it in between 24 and 48 hours, you'll lose 20% of the project's grade.
However, no projects can be more than two days, like in part because I really solutions to the projects at that point so that people can start on the next one.

8. Okay, so that is projects. What about homeworks? Well, homeworks are submitted through Mimir classroom, much like the projects and they're always due at 10:00 PM on Thursday. They're given out every week there'll be at least 12 homework assignments. but only the top 10 grades will be used. Any others will be dropped. and the important thing to note is there is no late period for homework. So if you haven't submitted the assignment by 10:00 PM on Thursday, you'll receive, possibly receive a zero. sometimes there may be ways to, Mimir sometimes auto saves your homework and submit it on your behalf at the deadline. But the safest thing to do is finish the homework before 10:00 PM Thursday, click that submit button.

9. There's also an exam. Now there's no final in this class. It makes finals week a lot easier with regard to this class. However, there is one exam about two thirds of the way through the semester. It's open note, meaning you can bring all of the notes, any books or things like that that you want to, the exam details can be found on the link on the schedule page will work. We'll talk more about those details as the exam gets closer. One really important thing to note is to pass this class mean to get any grade besides a zero, you need to get at least 50% of the points on the exam. So that's a little bit scary. But to be honest, the exam scores in this class are generally fairly high. However, if you fail the exam and you get less than 50% of the points, there's an appeal process and things like that described in the syllabus. I wouldn't worry about it unless it happens.
Alright. Another big topic then I need to talk to you about here in part because I would love for this be the first class that we don't need to fail anybody for cheating. but to be perfectly honest, cheating is a huge temptation and especially in CS courses. So I'm going to be checking and I will be failing students if you cheat. So please, you know, let's make this year, a nice year. Do your own work. Okay? You're welcome to look for help. You're welcome to seek help from other people, however you need to cite them. You need to put in the top of your file. Hey, this website was really helpful or this person was helpful and describe how it was useful to you. Okay. If you're unsure whether or not a particular resource is allowed to be used, ask, you know, we will not be upset if you're like, Hey, this is this really nice solution. I find it, am I allowed to use it? And we'll almost certainly say yes. however, if it's found that you are using work or modifying work that you found outside in it, that's plagiarism, that's academic dishonesty. That's something that will fail you from this class and likely have other repercussions as well. Relatedly do not copy or even view any other students' code or answers. You're not allowed to use code implemented by somebody else. You use codes, really in any way without citing them. And you're especially not supposed to use code from other students in this class or previous, semesters of this class. The whole point of the homework from the projects to the exam is to test your abilities and to have you learn by solving. And if you're subverting those processes by finding other people's solutions, are being academically dishonest and you aren't doing the work that this course is giving you a grade four, that's cheating. That's an academic dishonesty report. That's you failing the class. And so to make note of this, I don't, I mean I want it to be scary cause I don't want people to do this, but you know, we will be using plagiarism detection software. We'll be looking for if your solutions match previous year solutions. If your solutions match other students in the class, if your solutions match, any sort of code that looks related that we can find online. breaking these rules will result in a final grade of a zero. This is a 400 level class. We're expecting you to be honest with your very close to graduation, you are very close to going out in the workplace. We don't want to be giving degrees to cheaters.
11. So in light of that I want to talk about one very specific form of cheating. Now there's many others but this is one that I've had to take a lot of action with in previous semesters and that's websites like Chegg. So there are websites where you can post assignments or homework problems and things like that and other people will solve those answers. Sometimes you have to pay a subscription to see the solutions. A chegg.com is one website that has been a, a kind of a constant thorn in my side in many classes. One thing I want to note is posting content from this class, posting homework questions and things like that to websites like chegg is illegal. In fact, you can read chegg's terms of service and it says, you know, the only content you're allowed to post there is content you the copyright for. And I guarantee you none of you as students in this class hold the copyright to anything that I write that a copyright held by MSU. and so if I find, and I have an account on Chegg and I'm checking it and other websites that are similar to it, if I find my content there, I will take legal action against whoever posted that content. Relatedly, viewing, using altering solutions found on websites like check, even if you didn't post the content, but you see a solution on Chegg because somebody else posted it. That's also academic dishonesty and likely plagiarism as well. And if it's discovered that you are viewing solutions and, and there's ways for me to find out and I've had to fail people for doing things like that. that will result in you failing the class. I have no tolerance for things like that. In this class, Chegg is not allowed and websites like it are not allowed in any form whatsoever. I want to make that really clear here because it's really easy for me to find out who posted content to chegg and it's really easy for me to tell if you looked at solutions on Chegg and plagiarized, or had the solutions influence your thought. There is a lot of serious sophisticated tools we have where you can also get information directly from Chegg as well. And this is something to warn you about that all of your classes right now are starting to check for people cheating using websites like check. All right, so sorry to be a big downer on that. I just really, really don't want to fail anybody for doing this this year. but I'm going to be checking regardless.
12. Okay. What else do you need to get by in this class? Oh, so the things that I'm kind of expecting you to know to some degree is I need you to know how to use Python three, specifically Python 3.6. I also am expecting you have some basic ability to use the Unix command line. Like you can use CD and run Python, and move files around and things like that. What we're going to be teaching you here in this class is how to use a database, specifically the SQL programming language, will be taught implementing a simple database system to kind of see how databases actually work and to do a lot of comparisons to various different database systems including some no sequel style systems.

13. Now I told you that there's no textbook for this class though there is a recommended textbook. This is kind of the, the, the best book on databases. It's really useful if you like the concept and you want to delve deeper into them. you don't need to get this book by any means, but if you're having with the course content, especially on the more complicated parts, like when we're getting into transactions and things like that, it may be worth picking up this book, as well. But once again, that's entirely up to you.
14. Another thing I want to talk about is the way that I have these videos lined up. I'm going to have multiple, choice questions throughout the lecture. These are opportunities for you to pause the video, think about what the right answer is, then play the video and see what the answer was. It is a good way for you to test your knowledge as you're moving through. So, here's an example multiple choice question. Which of these can be turned in late? I'm going to stop for a second. If you need a rewind the video or look at the syllabus you can do so. Then I'll reveal the answer. [Pause] Alright. So, it definitely doesn't make sense to turn in an exam late. When the timer runs out on the exam, you would have to turn in the exam or else you get a zero on the exam. Specifically, homework can't be turned in late, but projects can. Projects have a maximum two-day late period. All right, so that's it for this admittedly very long video. Please read the syllabus. There's more content in there that I didn't talk about. You are responsible for knowing the syllabus and it's content with regard to how to handle, disabilities, more details on academic dishonesty and what's allowed and not allowed in this course. So please read that before moving onto the actual course content. thanks everybody and good luck.