

ENGI 1331 UTA ENGI 1331 Questions Only

Matthew Woodring

In this document, I provide a list of common questions and answers students have about ENGI 1331. If you would like me to expand on any of these answers, please reach out to me!

The questions that are highlighted are the most important ones.

ENGI 1331 Questions:

1. “How can I succeed in this course?”

- a. First, you need to complete all of the mastery assignments. It is incredibly difficult to understand the material and make good grades on the exams without doing this. You should start them early so you have enough time to get help if you end up needing it. Also, make sure you can complete all of the mastery assignments in the recommended amount of time.
- b. Second, you need to come to office hours if you’re having trouble with *any* of the content. This course has a multitude of professors and UTA’s that are willing to help, so please make use of them. Do not sit around struggling for several hours on a problem; come into office hours and get help.
- c. Third, you need to study more than just the mastery assignments. Before each exam, practice problems from past exams are released. These are the perfect study material because they are exactly what you can expect to see on the exams. Make sure you understand and can complete all of these problems.
- d. Lastly, like any class, you need to complete all of the assignments including the ICP’s, OR’s, and NAE Project assignments. Historically, only about 60% of your grade comes from the exams. If you can get close to a 100 in the other 40% of the grades, then you will be setting yourself up for success.

2. “Is MATLAB useful in other courses and/or in the job market?”

- a. Yes, but it mostly depends on your major. Mechanical engineering majors will use MATLAB in many other classes, but electrical/computer engineering majors will likely never touch MATLAB again at UH. The only math courses I know that use MATLAB are Linear Algebra (MATH 2318) and Introduction to Numerical Analysis in Scientific Computing (MATH 4364). For the job market, I know people who have gotten jobs specifically because they are really good at MATLAB. One of them worked at a large biomedical research company and the other currently works at Boeing, so it is definitely useful to know MATLAB. Additionally, I have used MATLAB in various non-academic projects simply because it was the most convenient tool for the job.

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3. “Why are we using MATLAB instead of some other programming language?”

- a. MATLAB is much easier for a beginner programmer than something like C, C++, or Java. You don't have to worry about memory management, declaring data types, or compiling. MATLAB allows you to ignore many of the small details that comes along with other programming languages. At its core, this course is not about learning MATLAB or even programming. These are just nice bonuses that come along with the main goal of helping students develop their problem solving skills. Additionally, MATLAB is widely used in the field of engineering, so it is likely to be a more useful tool to the average engineer than something like C, C++, or Java.

4. “Are there any resources you recommend to learn the material?”

- a. The best resources are the ones provided in class including the mastery assignments, OR's, and ICP's. However, there are a couple of resources that are useful. The MATLAB Onramp course is a great introduction to MATLAB and can be found at: <https://www.mathworks.com/learn/tutorials/matlab-onramp.html>. The MATLAB help forum is also a great resource, especially for the NAE Project. It can be found at: <https://www.mathworks.com/matlabcentral/answers/index>. If you run into any error messages in MATLAB, googling them and looking on the help forums will likely help you fix the issue.

5. “How should I approach the problems given in this class?”

- a. First, carefully read the problem twice. Make sure you really understand what the problem is saying. If you are still confused after reading it two times, read it again. It is much better to spend an extra five minutes reading the problem than to spend an extra thirty minutes fixing your solution later.
- b. Second, come up with an idea for how you want to solve the problem before you even start coding. You do not need a detailed plan; just a roadmap of how you want to tackle the problem. Working out an example of the problem on paper can be useful here.
- c. Lastly, start coding your solution. If you run into an issue, and you are not taking an exam, try googling the issue or asking a UTA for help.

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6. “What do I do if I get stuck on a problem?”

- a. First, make sure you are really stuck on the problem. If you have not made any progress in about ten to fifteen minutes, then try taking a break from the problem. If you come back from your break and still are not making any progress, then you are probably stuck.
- b. Second, try googling the problem you are having. If it is an error message, you will likely find someone else who has had the same problem on the MATLAB help forum: <https://www.mathworks.com/matlabcentral/answers/index>.
- c. Lastly, come to office hours or email your UTA for help. Take advantage of the opportunity of having several UTA's willing to help you solve the problem. Do not sit on a problem for hours struggling. If you come to office hours or email your UTA, you will get help and will better understand the material.

7. “I am not doing well in the course. Should I drop it?”

- a. This is a hard question to answer because it depends on your specific situation. Before dropping, always consult with your professor, academic advisor, and the financial aid office. Personally, I would only drop a course if I knew I was going to make a D or an F. Just remember you only get six W's for your whole undergraduate degree.

8. “How can I best utilize my time during office hours?”

- a. First, and most importantly, make sure you have read the problem *and* made a serious attempt at solving it. You cannot learn MATLAB by watching someone else solve problems or getting a UTA to give you the answer. Developing strong problem solving skills is an active process that you have to build by actively working on problems.
- b. Second, come in with specific questions. It is much easier to help someone when they tell us what they are having difficulty with rather than just saying “My code is not working, can you help me?”. Try telling the UTA what error or unexpected result you are getting is and why you think that may be happening.
- c. Lastly, please do not be scared to ask questions. The only bad question is the one that is never asked. It is much better to ask a multitude of questions during office hours than to not ask any and end up worrying about failing the course.

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9. “How should I send an email to my UTA to get the best response?”

- a. When asking for help over email, you have to expect delays since you are unlikely to get an immediate response. In order to minimize the time spent waiting for a response, your email asking for help should include: the problem you are having, a screenshot of any error messages, and your .m MATLAB code file. A screenshot of your code, while better than nothing, is hard to troubleshoot. Sending the actual code, which can be pasted into the UTA’s MATLAB program, is a much better way of sending the code. Make sure your question is specific and gets across all the necessary information in order to avoid unnecessary waiting time while your UTA asks you for clarification.

10. “What should I study for the exams?”

- a. Anything presented in the course is fair game for the exams. Therefore, you should be prepared for any problem that uses the tools taught to that point in the class. Exams, by the nature of programming, are cumulative.
- b. First, make sure you are comfortable with all the topics taught. Make sure you understand how they work and when you should use them. If you skip this step, then solving any problems including that topic will be difficult.
- c. Next, make sure you can complete every mastery assignment within the recommended amount of time. It is great if you can solve the problem, but it is super important you can do it in the appropriate amount of time since you have a limited amount of it on the exams.
- d. Once you can do all the mastery assignments, try solving some of the past years’ exam problems. These problems are perfect because they are the difficulty you can expect to see on the exams.
- e. If you have completed all of the above steps, you will likely do fine on the exams. However, if you still want to study more, I recommend reworking the ICP’s done in class and looking at some of the practice problems on Zybooks.

11. “Why do we use Zybooks in this class?”

- a. Zybooks was not always used in this class to grade the mastery assignments. They used to be graded by UTA’s using an Excel sheet. As you might expect, this ate up several hours of UTA’s time every week due to the sheer amount of submissions that had to be graded. Zybooks makes grading automatic and presents little problems. It is a much better use of UTA time to host office hours and answer student questions rather than grading hundreds of mastery assignment submissions every week. There are sometimes mistakes in the grading script on Zybooks, but they are rare and easily fixable.

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12. “How many decimal points should I use in an ‘fprintf’ statement?”

- a. If the question specifies an amount you should use, then use that amount. If the question does not specify an amount, then you should use the appropriate amount based on the rules of significant figures. However, in this class, you are usually fine using two or three digits after the decimal. You are unlikely to be penalized regardless of the amount you use *unless* the question specifies an amount and you do not use it.