



Studying for the Mathematics

Knowing how to approach the material is the first step in succeeding in a math course at UMBC. The amount of material covered, and the speed at which it is covered, may seem overwhelming; but if you follow these guidelines, your stress level will decline as your success increases.

- Take material from the course and apply it to solve problems. (Application)
 - Lectures
 - Before class review ideas from the previous section and read over the section to be covered.
 - Learn to apply concepts by practicing problems during class (while taking notes or during time set aside for this).
 - If class time is set aside, ask questions when you have trouble, or ask the teacher before or after class.
 - After lecture cement each technique by trying other example or homework problems with the same concept.
 - Book
 - Work through examples in the text until you understand the steps.
 - Work homework problems using methods introduced in the text.
 - Try to complete all homework problems after you understand the techniques to produce repetition that will improve your ability to do entire problems correctly and cut down on silly mistakes.
 - If you can't solve the problems yourself and read the solution in the solution manual, wait a day and try the problem again.
- Identify which tools need to be used for a problem. (Analysis)
 - After getting a grasp for a particular technique or tool, write down which types of problems use that tool.
 - Find identifying features, such as key words or phrases, used in each type of problem to be able to choose the proper tool.
 - Ask yourself, how did I know how to do that problem?
 - For each chapter and before each test, make a chart of the different types of problems, a way to identify the type of problem, and the tool(s) used to solve the problem
- Solving problems using multiple tools (Synthesis)
 - Some test and exam problems require the use of multiple techniques from different sections of the course or use complicated techniques that are built upon a number of techniques learned earlier in the course.
 - Practice breaking down homework or review problems into multiple parts and listing the techniques used for each part.
 - Review and practice difficult techniques that are used in many types of problems.
 - A good source for these types of problems is the review section of each chapter.
- Solving conceptual problems. (Evaluation)
 - Some problems do not ask you to use tools you have learned in the course but want you to apply concepts in a new way. These problems require an understanding of the ideas underlying the techniques and tools used to solve problems.
 - Write down the concept or idea behind each tool or technique.
 - Connect the concept to other concepts used in the course, i.e. which other concepts are needed to understand Concept A and which other concepts are dependent on Concept A.
 - Try to understand why the idea is true and what the concept means.
 - If concept is difficult to understand, ask professor, tutor, help room teacher, or other student to explain the concept, then look for opportunities to explain the concept to another student.
 - Create a concept map for the chapter or course and update it when new concepts are learned.
 - As you work a problem using techniques connected to the concept, make sure the method of solving makes sense: Are there other more efficient or better methods?
 - Create your own conceptual problem using the concept.
 - Identify and practice any conceptual problems on review sheets, old tests, or in the book.