MATH INFORMATION FOR STUDENTS WHO PLAN ON TAKING UA CALCULUS

placement@math.arizona.edu , http://math.arizona.edu/academics/placement

MATH AT UA-Most of you will take one of the following courses in the fall: Math 111, 112, 120R, 122A+122B, 125, 129. Your Fall math course will be based on your ALEKS Test score. If you plan on taking Math 129 or 223, you will need to add this class to your schedule on your own and will need to make sure your prerequisite credit is in the UA system at least one week prior to the start of classes. Please see a math advisor if you are interested in taking an honors calculus, if you have a credit for a college level math course, or if you have or expect AP Math credit.

TESTING

- **FIRST TEST** -If you have not yet completed the UA ALEKS Online Assessment, you need to do so as soon as possible, but outside of the orientation schedule. Review the information on the Math Placement Website at http://math.arizona.edu/placement/freshman and access the test through the Next Steps Center at http://nextsteps.arizona.edu .
- **RETEST** -If you have tested once and would like to retest, you need to set up a proctored testing appointment through the UA Testing Office. In the summer, students who have access to a webcam and microphone can use an online Proctoring service, Examity. Tests are available around the orientation schedule, and in August before classes begin.   There is a retesting fee. Review is strongly recommended. See the math placement portion of your Next Steps Center or http://math.arizona.edu/academics/placement/exams/process#retake for more information.

OPTIONS FOR STUDENTS WHO WANT TO PLACE HIGHER, REVIEW AND RETEST

- ***Review through ALEKS Learning mode***.   This is a 6 week access for $32, and will help prepare you for the placement test. See http://math.arizona.edu/academics/placement/exams/preparing . Many students take a summer review course like college level Intermediate Algebra. Please note that freshmen who want to take UA MATH 111, 112, and 120R must place into these courses through the UA placement test.   If you plan on taking a summer course outside Arizona, please have it evaluated through http://math.arizona.edu/academics/placement/credits/request before taking it.
- ***Review on your own*** through some links available at http://math.arizona.edu/academics/placement/exams/preparing
- Take UA Math 100 in Summer or Fall if you have an appropriate math placement test score.

PREPARING FOR CALCULUS AND PRECALCULUS COURSES

In order to be successful, we recommend reviewing certain skills before classes start. Our courses move quickly. Most professors will begin lecturing on the first day of classes with the expectation that students participate in a significant portion of the discussion. Some courses require quizzes early in the semester. In order to be successful in college level math courses, students should:

1) Start preparing before you arrive at UA. Go to the course website, look at the course syllabus, and get started on the first few weeks of assignments, with the goal that the first few weeks of lecture will be review. This is a formula for success. Do not walk into your first UA math course without review.

2) Students who place into a course with the minimum requirements should consider taking the prerequisite.

3) Review and be prepared. If you are enrolling in math 122A+122B or125, review your algebra and trigonometry before classes begin. Here are three websites to help you review:

Algebra: http://prep.math.lsa.umich.edu/pmc/

Trigonometry: http://math.arizona.edu/~trig

More review and important links: http://math.arizona.edu/academics/placement/exams/preparing . The Math Department's calculus webpage at http://math.arizona.edu/~calc/ contains the day-to-day calendars for Math 122A, 122B, 125, 129, and 223 and suggested homework assignments. After you have reviewed your algebra and trigonometry, try to complete the homework for the first chapter that will be covered in your course.

IMPORTANT: If you are taking math 129 or math 223, see http://math.arizona.edu/~calc/ to access Final Exam Study Guides for review. If you are taking math 129, go over the Final Exam Study Guide for math 122B or125. If you are taking math 223, then go over the Final Exam Study Guide for math 129. Reviewing these study guide questions should provide you with an idea as to how well prepared you are. Going through this review process is particularly important if you took calculus at another school and you are registering for either math 129 or 223. Each school teaches different topics in calculus, and perhaps uses different terminology and notation. By going over the study guides for the course that precedes the one that you are registered for, you will prepare yourself well. If you find that you have difficulty with the problems in the study guide, then you should rethink where you want to start the calculus sequence.

UA MATH COURSES FOR STUDENTS WHO NEED CALC I OR HIGHER

MATH 112 -- College Algebra Concepts and Applications (3 units) UA ALEKS Prep for Calculus score of 45-100% or Prep for College Algebra score of 55-100% required.
Description: Topics include properties of functions and graphs, linear and quadratic equations, polynomial functions, exponential and logarithmic functions with applications. Students are expected to have a graphing calculator.
Comments: Students who complete UA MATH 111 and 112 with a grade of C or higher are then eligible to enroll in Math 122A/B. A higher score is required to take Math 111.

Math 111- Plane Trigonometry (2 units) UA ALEKS Prep for Calc score of 55-100% or Prep for Col Alg score of 65-100% required.   Generally taken after Math 112 or at the same time as Math 112 (if score is appropriate), as a prerequisite to Calculus.
Description: Topics include right triangle trigonometry, trigonometric functions and graphs, trig identities, inverse trig functions, law of sines, and law of cosines. Students are expected to have a graphing calculator.
Comments: Students who complete UA MATH 111 and 112 with a grade of C or higher are then eligible to enroll in Math 122A/B.

Math 120R - Calculus Preparation (4 units) UA ALEKS Prep for Calculus score of 65-100% required.
Description: Reviews algebra and trigonometry; study of functions including polynomial, rational, exponential, logarithmic and trigonometric. Graphing calculators are required in this course.
Comments: This course is intended to prepare students for Math 122A/B. Although this course is not specifically listed as a mathematics requirement for any major, majors that only require courses such as Math 105 or Math 112 can accept this course. Students who need to take Math 122A/B but do not place into it, should take math 120R or both Math 111 and 112.

MATH 122A –Functions for Calculus (1 unit) UA ALEKS Prep for Calculus score of 70-100% required.
Description: Elementary functions, their properties, and uses in modeling. A graphing calculator is required for this course.
Comments: This is a 3.5 week course where students will work with applying prerequisite concepts to the standard transcendental functions, pulling them into the mechanics, approach, and conceptual understanding of what is required for Calculus. Students must complete this course with a grade of C or higher to continue on to Math 122B. Enroll in both Math 122A and 122B prior to the start of the semester. Students who do not successfully complete Math 122A with a C or higher will be administratively switched to Math 120R. Students who have no experience with Precalculus or Trigonometry should take Math 120R or Math 111+112 first.

MATH 122B – First-Semester Calculus (4 units) Successful completion of Math 122A required with a grade of C or higher. Enroll in both Math 122A and 122B prior to the start of the semester.
Description: An introduction to first-semester calculus for engineering, science and math students, from rates of change to integration, with an emphasis on understanding, problem solving, and modeling. Topics covered include key concepts of derivative and definite integral, techniques of differentiation, and applications, using algebraic and transcendental functions. Examinations are proctored. Except as per University policy on repeating a course, credit will not be given for this course if the student has credit in a higher level math course. Such students may be dropped from the course.
Comments: This course begins during the 4th week of classes. Math 122B gives students a solid foundation needed to continue on to other courses such as Math 129. Any colleges listing Math 125 as their math requirement will accept Math 122B. Students must complete UA Math 122A with a grade of C or higher.

MATH 125 - Calculus I (3 units) UA ALEKS Prep for Calculus score of 85-100% required.
Description: An accelerated version of Math 122B. See description of Math 122B.
Comments: Placement for this course is at a higher level than Math 122A/B due to its accelerated format. Any major indicating Math 125 as its math requirement will accept Math 122B. This course uses the same text and syllabus as Math 122B even though the words "with applications" are not used in its title. This course is for independent and highly motivated students. More work is done by the student outside of class than in Math 122A/B. Math 122A/B is the recommended sequence for first semester students.

MATH 129 -- Calculus II (3 units) Continuation of MATH 122B or MATH 125. Techniques of symbolic and numerical integration, applications of the definite integral to geometry, physics, economics, and probability; differential equations from a numerical, graphical, and algebraic point of view; modeling using differential equations, approximations by Taylor series. Prerequisite: C or better in MATH 122B or 125.

MATH 223 -- Vector Calculus (4 units) Vectors, differential and integral calculus of several variables. Prerequisite: C or better in MATH 129.

MATH 313 -- Introduction to Linear Algebra (3 units) An algorithmic approach to solving systems of linear equations transitions into the study of vectors, vector spaces and dimension. Matrices are used to represent linear transformations and this leads to eigen-vectors and eigenvalues. The precise use of definitions plays an important role. Prerequisite: MATH 129.

MATH DEPT INFORMATION

The Math Department website at http://math.arizona.edu/ contains a good amount of information about the department that you will find useful. If you are a mathematics major, then the website http://math.arizona.edu/ugprogram/ contains useful information that you should familiarize yourself with. In particular, click on "Research, Teaching, and Internships for Undergraduates" to begin planning for the future.