MATH INFORMATION FOR STUDENTS WHO PLAN ON TAKING UA CALCULUS

placement@math.arizona.edu math.arizona.edu/academics/placement

MATH AT UA - Most of you will take one of the following courses in the Fall: Math 112, 120R, 122A+122B, 125, 129. 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 have a credit for a college level math course or if you have or expect AP Math credit.

TESTING

- **FIRST TEST** - Please review the Math Placement portion in your Next Steps Center to determine if the PPL Math Placement Assessment is required. If a Placement Assessment is required, you need to take it as soon as possible, but outside of the orientation schedule. Review the information about math placement and access the test through the Next Steps Center at http://nextsteps.arizona.edu . Tests are proctored using Respondus Monitor. Students need access to a webcam with a microphone. Limited in-person testing is available.

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

- ***Review through PPL Prep and Learning module and then*** **RETEST -** Students who have tested can access a free PPL Prep and Learning module through their Next Steps Center. Students can then retest through the Next Steps Center. The first test is free; after that, there is a testing fee. Review is strongly recommended.
- ***Review on your own*** through some links available at https://tinyurl.com/4ytrpcfm . Many students take a summer review course. If you plan on taking a summer course outside Arizona, please have it evaluated in advance through http://math.arizona.edu/academics/placement/credits

PREPARING FOR CALCULUS AND PRECALCULUS COURSES

In order to be successful, review your math 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 or 125, review your algebra and trigonometry before classes begin. Review sites: Algebra: http://prep.math.lsa.umich.edu/pmc/ Trigonometry: http://math.arizona.edu/~trig

More review and important links: The Math Department's calculus webpage, at https://calculus.math.arizona.edu/ 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 https://calculus.math.arizona.edu/ 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)
PPL score of 40-100% , SAT I MSS 560-800, ACT MATH 24-36 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 112 are then eligible to enroll in MATH 120R, followed by MATH 122A/B.

Math 120R - Calculus Preparation (4 units) PPL score of 60-100% , SAT I MSS 640-800, ACT MATH 26-36 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. Students who need to take MATH 122A/B but do not place into it, should take MATH 120R (C or higher required) or MATH 112 (then MATH 120R).

MATH 122A –Functions for Calculus (1 unit) PPL score of 75-100% , SAT I MSS 660-800, ACT MATH 28-36 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. Enroll in both MATH 122A and 122B prior to the start of the semester. Students must complete this course with a grade of C or higher to continue on to MATH 122B. Students who do not successfully complete MATH 122A with a C or higher will be administratively switched to MATH 120R.

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 to be eligible for this course.

MATH 125 - Calculus I (3 units) PPL score of 92-100% , SAT I MSS 730-800, ACT MATH 32-36 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. This course is for independent and highly motivated students. More work is done by the student outside of class than in MATH 122A/B. This course is intended for students who have had prior experience with calculus. MATH 122A/B is recommended for first semester calculus students.

MATH 129 -- Calculus II (3 units) Continuation of MATH 122B or MATH 125 (a grade of C or better in one of these courses is required.) 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.

MATH 223 -- Vector Calculus (4 units) Successful completion of MATH 129 required with a grade of C or higher. The course covers differential and integral calculus of functions of several variables. Topics include vector valued and scalar functions, partial derivatives, directional derivatives, chain rule, local optimization, double and triple integrals, the line integral, Green's theorem, Stokes' theorem and the Divergence theorem. Examinations are proctored.

MATH 313 -- Introduction to Linear Algebra (3 units) Successful completion of MATH 129 required. 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 eigenvectors and eigenvalues. The precise use of definitions plays an important role. Examinations are proctored. This course is required in the math major and prepares students to take MATH 323. It is a prerequisite to the majority of the higher level courses in mathematics.

MATH DEPT INFORMATION
The Math Department website at http://math.arizona.edu/ contains a helpful information about the department. Details about our major and minor programs are under Academics > Undergraduate Program.