This is a template syllabus. This file contains course specific information, such as catalog description, goals and objectives, which does not change. <mark>The parts highlighted in yellow are to be determined by the individual instructors.</mark> The official syllabus for each section will be provided by the instructor in the beginning of the semester.

<mark>**Syllabus 20 ****</mark>

The University of Iowa
The College of Liberal Arts and Sciences
Department of Mathematics
14 Mac Lean Hall
MATH:1020 Elementary Functions
<mark>Lectures: Time and Place</mark>

Some of the policies relating to this course (such as the drop deadline) are governed by its administrative home, the College of Liberal Arts and Sciences, 120 Schaeffer Hall.

Prerequisites: MATH:1010 with a minimum grade of C- or MATH:1005 with a minimum grade of C- or MPT Level 3 score of 9 or higher or ALEKS score of 60 or higher or MATH:1340 with a minimum grade of C-.

Recommendations: it is strongly recommended that students whose math placement score is older than one year retake the math placement test for accurate placement and success in the course.

 Approved GE: Quantitative or Formal Reasoning.

<mark>**Instructor:**</mark>
<mark>Office hours: and by appointment</mark>
<mark>Math Lab hours:</mark>

Course Supervisor: Dr. Olga Sokratova
Office hours: TBA
Office location: 325 J MLH
Phone: 319-335-3873
E-mail: olga-sokratova@uiowa.edu

DEO Contact Information: Professor Maggy Tomova, 14 MLH, maggy-tomova@uiowa.edu

Catalog Description of Course: This is a fast paced one-semester college precalculus course. This course is roughly equivalent to MATH:1005 College Algebra and MATH:1010 Trigonometry compressed into one semester. Topics include functions, coordinate systems; properties and graphs of polynomial, rational, algebraic, trigonometric, logarithmic, exponential functions; inverse trigonometric functions; and properties of lines, circles, and other conics. *This course is not intended for those learning graphing, logarithms, exponentials, or trigonometry for the first time.*

Goals and objectives: The main goal of this course is to prepare students for a trigonometry-based calculus course (MATH:1850, MATH:1460, or MATH:1550). The particular objectives are using functional notation, finding the domain of polynomial, rational, radical, exponential, and logarithmic functions, evaluating the sum, difference, product, quotient, and composition of two functions at a given value, finding the inverse of a function and its domain and range, interpret the graphs of functions, sketching the graphs linear, polynomial, rational, exponential, logarithmic functions and their transformations as well as piece-wise defined functions, solve polynomial and rational inequalities, using the factor and remainder theorems using polynomial long division to factor polynomials of degree three and higher, finding the vertex of a parabola by completing the square and using the vertex formula, finding the center and radius of a circle by completing the square, solving polynomial, rational, exponential (with like and unlike bases), logarithmic equations as well as equations involving radicals and rational exponent, using applications of linear functions, quadratic functions (including falling object problems and extremum problems), exponential and logarithmic functions (including exponential growth and decay, doubling time, and half-life problems. Finding the trigonometric function of any angle, proving trigonometric identities using definitions, solving trigonometric equations using identities, solving right, acute and obtuse triangles, solving problems using the law of sines and the law of cosines, graphing trigonometric functions and their inverses, and describing their behavior, including periodicity and amplitude; using polar coordinates and graphing polar curves, representing complex numbers in rectangular and polar form, and convert between rectangular and polar form, multiplying complex numbers in polar form and using DeMoivre's theorem to find roots of complex numbers, defining a curve parametrically and graphing parametric curves, writing equations of conic sections in standard form.

Required text: (Check the current textbook from Department Webpage)

https://math.uiowa.edu/undergraduate-program/course-information/book-list

For 2018-2019: Ratti, McWaters, Precalculus. A Right Triangle Approach, 4th edition with MyMathLab

Purchasing options: <mark>In some semesters, Digital Access-ICON Direct textbooks may be available</mark>.

1. 3-hole punched loose leaf with MyMathLab access code, ISBN 978-0-134-85102-0. Available at Iowa Book or University Bookstore.
2. E-book with MyMathLab access code ISBN 978-0-134-86028-2. Available at Iowa Book/University Bookstore or online (instructions will be given in class).

   Both options include the e-book.

Note the following:
1. You will use MyMathLab to complete your homework assignments.
2. You will need internet access to use MyMathLab.
3. Your purchase of MyMathLab includes an online version of the text.
4. <mark>There is a 14 day grace period before you need to enter an access code.</mark>
5. You can access MyMathLab through ICON.
6. Refer to "MyMathLab student user guide" available on ICON in the "Content" section.

Material to be covered from the above Text: We'll cover Chapters P (briefly), 1, 2, 3 (except for 3.7), 4(except for 4.5), 5, 6 (except for 6.6), 7(except for 7.4, 7.5), as well as Sections 8.2 and 8.3 from the textbook. In addition, an overview of conical sections will be given (Chapter 10, briefly).
If the textbook changes, then still every topic in the "Goals and the Objectives" will be covered.

Tentative lecture schedule: (subject to change)

Chapter P – 1 week

Chapter 1 – 2 weeks

Chapter 2 – 3 weeks

Chapter 3 – 1 week

Chapter 4 – 2 weeks

Chapter 5 – 2 weeks

Chapter 6 – 1 week

Chapter 7 – 2 weeks

Chapters 8, 10 – 1 week

ICON (https://icon.uiowa.edu/)
Class announcements, due dates, and information pertaining to homework, quizzes, and tests will be posted regularly on ICON. I recommend you check it daily.

Calculation of Grade: The grade is based on homework, weekly quizzes, 3 midterms, final exam, and attendance. Each instructor determines the weights.

Grading: For each course, the instructor chooses a grading strategy appropriate to departmental and college guidelines, and the related discipline. Some of the recommended options include (but not limited to) the following:

With **criterion-reference grading**, students receive grades based on the quality of their work in relation to the criteria defined by the instructor and by the rubrics or models specifying the qualities of each grade. Some instructors may choose to adjust the scale (criteria) if a need arises.

Norm-based grading is used in the course which is based on how others in the class perform. This method is generally used in large lecture courses or coordinated multi-section courses. The distribution of grades may be based on CLAS recommendations.

Adjustable criterion-referenced grading is a combination of having some minimum expectations for each letter grade (scale) and use some limited curving if a need arises. The scale can be adjusted only to improve the letter grades of the students, that is, the scale will never go up during the semester.

Note that no A+ will be given in this course.

Examinations: There will be three 50-minute midterm exams and a cumulative final exam.

Midterm Exam I:
    Date:
    Coverage: Chapters P, 1, 2.
Midterm Exam II:
    Date:
    Coverage: Chapters 3-4.
Midterm Exam III:
    Date:
    Coverage: Chapters 5-6.
Final Exam:
Date TBA Coverage: comprehensive
Classrooms: TBA

All exams are closed-book, closed-notes.

A Word about the Date and Time of the Final Exam: The date and time of every final examination is announced by the Registrar generally by the fifth week of the classes. **No exams of any kind are allowed during the last week of classes.** All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of the final exam.

Homework: Graded homework assignments will be completed with MyMathLab. Refer to MyMathLab for due dates and instructions. Occasionally you will be given regular (paper) homework. It will be announced on ICON.

Quizzes:
Quizzes will be given every week. Quizzes will be based on the homework.

Course Policies:
Make-up policies for exam and quizzes: As stated in CLAS webpage:
https://clas.uiowa.edu/faculty/student-attendance-and-absences:
*University policy requires that students be permitted to make up examinations missed because of illness, mandatory religious obligations, authorized UI activities, or unavoidable circumstances. An unavoidable circumstance is defined as an event beyond the student's control and often involves a serious and unexpected hospitalization, a family tragedy, or a related incident. Such circumstances **do not include** attendance at a wedding, a family vacation, obligations related to work or other such matters. The instructor of a student participating in an authorized UI activity is sent a statement generally by email from the UI official in charge of the event before the absence occurs; this statement will include the specific date and time that the student will miss class. Activities related to employment, fraternities or sororities, or volunteer activities are not UI authorized activities.*

Attendance: Attendance will be taken regularly. Absences will only be excused for medical or family emergency reasons, a university-sanctioned field trip or the observance of a religious holiday. If you miss a class due to illness, you should submit the absence form through the Registrar website. If you miss more than five days of classes you should be able to provide a record of appointments or documentation from a health care provider. If you miss a class, you are still responsible for the material discussed in class and for all the announcements made in class.

Participation in class discussions: I highly recommend that students make use of opportunities to ask questions in class or present problems at the board when offered.

Timely completion of assignments: There will be 20% penalty per day for late assignments.

*Calculators***:** Unless otherwise indicated, no calculators or other hand-held electronic devices are allowed on exams or quizzes. Exams and quizzes are written in such a way that a calculator is not necessary.

Student Collaboration: Student collaboration is NOT permitted on exams. Any attempt to collaborate during exams will result in a 0 score on that test. The instructors will specify if collaboration is allowed on assignments and, if so, the expectations for a student's individual performance.

The homework for this course is designed to help you master your knowledge related to the topics covered during lecture. As such, you may work on the homework problems with others or use online resources. However, please be aware that to master the skills needed for this class, practice is required and that to do well on the final exam you will need to work many of these problems multiple times without help. Be sure to test your knowledge by doing much of the homework on your own. All other graded work for this class (quizzes and tests) must be completed individually and any form of cheating will be reported. Please read the student collaboration rules above.

Other Expectations of Student Performance: Expect to spend at least 8 hours weekly outside of the classroom doing the assignments. More time may be needed to prepare for exams.

Classroom behavior: I expect that you will behave with respect to the other students in the class and to me. In particular this means turning off (or silencing) your cell phone. You should not be sending text messages, browsing internet, playing games, or listening to music during class.

Resources for Students
Students will find the Writing Center and the Speaking Center very useful for this course:
Writing Center: http://www.uiowa.edu/~writingc/
Speaking Center: http://clas.uiowa.edu/rhetoric/for-students/speaking-center
Math Tutorial Lab: 125 MLH http://www.math.uiowa.edu/math-tutorial-lab
Math Tutorial Lab: The Math Tutorial Lab offers free tutorial services for the course material. Participation is optional, but strongly recommended. It is located in 125 MLH and it is staffed by teaching assistants from the Department of Mathematics.

<u>Notes to the Students:</u>

1. All students in the College have specific rights and responsibilities. You have the right to adjudication of any complaints you have about classroom activities or instructor actions. Information on these procedures and your responsibilities is available in the Schedule of Courses and on-line in the College's Student Academic Handbook,

(https://clas.uiowa.edu/students/handbook) In summary, first see the person you wish to complain about, and then see his/her immediate supervisor. The chain is: graduate or undergraduate assistants, then Prof. XX, then the Chairman of the Department of Mathematics Prof. YY, and then an appropriate Dean. The Department of Mathematics has offices in 14 MLH (MacLean Hall). To make an appointment to talk to the chairman of the department call 335-0714 or contact the departmental secretary in 14 MLH.

2. We would like to hear from anyone who has a disability which may require some modification of seating, testing, or other class requirements so that appropriate arrangements may be made. Please contact your lecturer during his office hours, in the beginning of the semester and far in advance of the exams. You should notify the Office of Student Disability Services, SDS and obtain the form(s) needed. The necessary modifications will be made available to you after the SDS processes and approves your request.

3. We are planning to use ICON for posting grades and other course material. Also, some announcements may be e-mailed through ICON to your UI e-mail. Check ICON and your UI e-mail regularly, and make sure that UI has your correct e-mail address.

4. *This course plan may be modified during the semester. All changes will be announced in class in advance. It is solely the student's responsibility to be informed of such announced changes.*

CLAS Teaching Policies & Resources — Syllabus Insert
https://clas.uiowa.edu/faculty/teaching-policies-resources-syllabus-insert