COURSE SYLLABUS

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YEAR COURSE OFFERED: 2019-2020

SEMESTER COURSE OFFERED: SPRING

DEPARTMENT: MATH

COURSE NUMBER: 1330 (This information applies to all sections)

NAME OF COURSE: Precalculus

NAME OF INSTRUCTOR: Irina Perepelitsa math.uh.edu/~irina

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The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Instructor information:

• Instructor: Irina Perepelitsa
• Office: PGH 214
• Office/conference Hours: Monday, Wednesday 12-2 PM
• Email: irina@math.uh.edu

PREREQUISITES: MATH 1310: College Algebra or a passing score on the test for placement out of College Algebra.

Math 1330 is a course mainly for students who have Calculus I in their degree plan. As such, the following rules apply to this course:

No calculators to be used on homework, quizzes, or tests(*).

No opt-out on the final; the final is mandatory for all students.

Please see an advisor to check about Calculus I being in your degree plan. If it is not there and if Math 1330 is not required for your major (as a prerequisite for another course), please take Math 1311 and Math 2311 as your core and reasoning.

*if you have calculator use on a SAF form, please take Math 1311 and Math 2311.
TEXTBOOK

The textbook, online quizzes, and additional help materials will be made available by logging into CourseWare at http://www.casa.uh.edu. The first portion of these materials are freely available for the first two weeks of class. **Students are required to purchase an access code to access the learning materials by the end of the second week of school. Access code can be purchased at UH Book Store. Note that if you order the access code online, you will receive it in the mail (which might take several days). If you don’t enter the code by the deadline stated on CASA, you will lose access to CASA temporarily – until you enter the code. If students miss assignments during the no access period, they should not expect to have make up options for those assignments.**

The information contained in this class outline is an abbreviated description of the course. Additional important information is contained in the departmental policies statement at http://www.uh.edu/nsm/math/undergraduate/course_policies/math13xx_policies/ and at your instructor’s personal webpage. You are responsible for knowing all of this information. Note that some 13xx policies do not apply to 1330 (for instance; no exemption/opt out from the final in Math 1330).

The instructor reserves the right to make changes on these policies. Any changes will be announced in class or on the course website in a timely manner.

COURSE OBJECTIVES FOR PRECALCULUS

When you successfully complete this course, you will be able to:
1. Recall and apply basic algebra skills without requiring a review.
2. Recognize various kinds of functions (including polynomial, rational, radical, exponential, and logarithmic functions), analyze their behavior, and use the properties of these functions to solve equations and application problems.
3. Define trigonometric functions; understand the right triangle trigonometry and unit circle.
4. Know and apply identities involving the trigonometric functions.
5. Recognize the conic sections and their geometric properties.
6. Exploit graphical and analytical techniques in solving problems.
7. Analyze and explain the important elements of the mathematical solution of equations.
8. Recognize and use the vocabulary of vectors (vector, scalar, magnitude, direction) to perform arithmetic on vectors and to solve application problems.
9. Be self-disciplined and dependable through daily consistent work.

ASSESSMENTS

A student in this class is expected to complete the following assignments:
1. Course Policy Quiz – online on your CASA account – **you must make 100% on the course policy quiz in order to have access to the other online assignments in the course.**
   Read the information here before you start the quiz: http://www.uh.edu/nsm/math/undergraduate/course_policies/math13xx_policies/
2. 4 Regular Exams
3. Final Exam
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4. Online Quizzes
5. Homework
6. Poppers (Attendance)

Components and Weights of Semester Assignments:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>4%</td>
</tr>
<tr>
<td>Test 2</td>
<td>17%</td>
</tr>
<tr>
<td>Test 3</td>
<td>17%</td>
</tr>
<tr>
<td>Test 4</td>
<td>17%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Homework</td>
<td>8%</td>
</tr>
<tr>
<td>Poppers</td>
<td>5%</td>
</tr>
<tr>
<td>Online Quizzes</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Note: The percentage grade on the final exam (without extra credit) can be used to replace your lowest test score if it is better than your lowest test grade.

GRADING SCALE

If “x” is your average, letter grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93 ≤ x</td>
</tr>
<tr>
<td>A-</td>
<td>90 ≤ x &lt; 93</td>
</tr>
<tr>
<td>B-</td>
<td>80 ≤ x &lt; 83</td>
</tr>
<tr>
<td>B</td>
<td>83 ≤ x &lt; 87</td>
</tr>
<tr>
<td>C</td>
<td>77 ≤ x &lt; 80</td>
</tr>
<tr>
<td>B+</td>
<td>87 ≤ x &lt; 90</td>
</tr>
<tr>
<td>C+</td>
<td>73 ≤ x &lt; 77</td>
</tr>
<tr>
<td>D</td>
<td>63 ≤ x &lt; 67</td>
</tr>
<tr>
<td>D-</td>
<td>60 ≤ x &lt; 63</td>
</tr>
<tr>
<td>F</td>
<td>below 60</td>
</tr>
</tbody>
</table>

EXAM INFORMATION

There will be 4 tests along with a mandatory final exam.

**Test 1 is an online test** over the pre-requisite material (algebra). You can find it under online assignments tab at CASA. You have 2 attempts; we take your best score. It is recommended to take practice test 1 first to see what to expect on Test 1. You can review basic algebra topics to prepare for this test. You can find help videos for these topics on the course website (or here: https://online.math.uh.edu/courses/placement/Modules.html)

**IMPORTANT:** If you score low on Test 1 (below 60 without extra credit); you may consider dropping this course and taking the prerequisite course to prepare yourself for this course. If you decide not to drop, it is strongly recommended that you sign up for an SEP workshop designed for Math 1330 students; you can add a workshop in your PS account before the last day to add.
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The remaining tests (Tests 2, 3, 4 and final) are taken at CASA testing center, with reservation. Use “proctored exams” tab at your CASA account to reserve a seat for it.

To see the exam dates and topics covered, please visit course website. **You must make a reservation to take a test prior to the first testing day.** You should print out the web page showing your reservation time for your records and proof of your reservation. Reservation generally begins 2 weeks prior to an exam; reserve a seat as soon as the scheduler opens up.

You can NOT use calculators during any of the exams; study accordingly.

**Exam topics:** *(Any changes on the exam topics or dates will be announced on the course website or at CASA calendar)*

<table>
<thead>
<tr>
<th>Test</th>
<th>Prerequisite Material</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>Prerequisite Material</td>
<td>Jan 13-Jan19</td>
</tr>
<tr>
<td>Test 2</td>
<td>Chapter 4</td>
<td>Feb5-Feb8</td>
</tr>
<tr>
<td>Test 3</td>
<td>Chapter 5, 6.1, 6.2</td>
<td>Mar 5-Mar 7</td>
</tr>
<tr>
<td>Test 4</td>
<td>6.3, Chapter 7, Vectors, Chapter 8</td>
<td>Apr 11-Apr 14</td>
</tr>
<tr>
<td>Final</td>
<td>Comprehensive (covers all chapters)</td>
<td>May 1- May 6</td>
</tr>
</tbody>
</table>

**Final Exam:**

Final is comprehensive and mandatory for ALL students. **There is no “exemption” or “opt-out” from the final in Math 1330. NO EARLY OR LATE FINALS.**

Check course website for final exam schedule. Final is given at CASA testing center. Reserve a seat for it when reservation begins. You will be able to take your final at a time during the testing window – depending on your reservation. Reservations are made online at CASA on a first come first serve basis; there is no guarantee that you will be able to find a seat on a certain date. **Make your travel plans so that you are available during the testing period.** When the reservation opens up; reserve your seat as soon as possible so that you might be able to find a seat on your preferred dates.

Your raw score on the final will be used to replace the lowest test score if it is better.

**Grade Appeals:** If you want to appeal your grade on the free response portion of an exam, contact your instructor within 5 business days after the exam grades are posted. Any alterations on your answer sheet will be considered an academic honesty violation (see Honor Principle paragraph on this syllabus). Grade appeals on any assignments should be made within 5 business days of the posting of the assignment grade.
EXTRA CREDIT

There are practice tests and a practice final on Courseware. If you take the practice test, then 5% of the highest score you earn will be applied to the relevant test as extra credit on the corresponding exam. You can take the practice tests several times (up to 20 times) and we only take your best score. Pay attention to the “end” dates on these.

In general, practice tests end before the exam starts (except for PT 1). Your instructor might post a new assignment titled “Practice Test # (NC)” to give you a chance to keep practicing during the testing period. These assignments are not for credit. Any assignment that is titled “… (NC)” will not be counted toward your grade; “(NC)” stands for “not for credit”. To receive extra credit, students should take the items titled “Practice Test #” before they close.

INSTRUCTIONS FOR QUZZES

Online quizzes will be given regularly in this course.

- The quizzes are located in the CASA CourseWare course website under the “Online Assignments” tab.
- The quizzes will close on the due dates given on CourseWare at 11:59 pm and will not re-open. If the quiz is still open when the time expires, your work will not be saved; you must submit any online assignment before 11:59pm.
- Two lowest quizzes will be dropped. The primary reason for this policy is to offset the impact of zero/low quiz scores due to emergencies (medical, personal, or otherwise) on a student’s final course grade. Hence, students should not expect to have an option to make up missed quizzes.
- You have 20 times to take each quiz.
- There is a 60 minute time limit for most quizzes.
- There may be 2 or more quizzes due every week; check the due dates carefully.

Once a quiz closes, then it is over for the semester. Neither I, nor the Math Department, is responsible for any difficulty that you have in accessing the quizzes. Please don’t delay taking quizzes – there are times during the week when CourseWare is slow or overloaded. There is no amnesty period for the quizzes; the quizzes will NOT be reopened at the end of the semester. Please contact CourseWare tech support directly if you are having problems. The email link is on the CASA homepage.

INSTRUCTIONS FOR POPPERS

- For each lecture starting on the third week of classes you will be asked a series of problems that will have to do with the lecture (over past or current material).
- The forms are for sale at the BOOK STORE. Please buy the package for Math 1330 with your section number printed on it. You must use the right popper forms for credit; you can’t turn in
your answers on any other kind of paper.

- You are required to fill in your id number, popper number and blacken the correct circles. Make sure that your id number and popper number are correct before turning in the popper at the end of the lecture. If these are not filled out correctly or if the darken circles are too light you will not get credit for that day’s lecture even if you attended.
- Some poppers will be dropped to cover for emergencies or unexpected events. Hence, students should not expect to have any make ups for poppers.

- **Do not turn in poppers for classmates.** If you turn in a popper for a classmate who was not in class that day, poppers for both students will not be accepted. Repeated offenses might be reported to the Departmental Hearing Officer (see “Honor Principle” in this syllabus).

- **If your popper is not graded even though you turned it in, that means you’ve made a bubbling mistake and there is nothing we can do about it, you will not receive credit for such poppers.**

**INSTRUCTIONS FOR HOMEWORK**

- There are weekly homework assignments. The homework problems and due dates will be posted on CASA. Some weeks, there might be more than one assignment.
- You will submit your answers using “EMCF” tab at CASA before the due date.
- Two of the lowest homework assignment scores will be dropped. The primary reason for this policy is to offset the impact of zero/low HW scores due to emergencies (medical, personal, or otherwise) on a student’s final course grade. Hence, students should not expect to have an option to make up missed homework.
- Your score on the homework is the number of correct answers out of the total number of questions.
- Students are expected to check the calendar on CASA often (to see the due dates for HW and quizzes) and to plan ahead and work on the assignments in a timely manner.

**LATE ASSIGNMENT AND MAKE-UP POLICY**

This course is a cumulative course. You as a student need to keep up with the reading, quizzes, homework assignments and exams. Students are expected to check the calendar on CASA several times a week and plan ahead so that they don’t miss assignments. We drop some assignments primarily to offset the impact of zero/low scores due to emergencies (medical, personal, or otherwise) on a student’s final course grade. Hence, students should not expect to have an option to make up missed assignments.

If you miss a test, it may be possible to reschedule a test appointment during the testing period (depending on space availability) by using the online scheduler. Do not assume that you will be able to reschedule - check first for availability. Rescheduling must be made online in your account; your instructor is not responsible for finding seats or making reservations for you.

Your final exam score will replace your lowest midterm exam score if the former is higher. (This replacement, if applicable, will occur at the end of the semester after the Letter Grade Calculator (LGC)
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is turned off. A missed test will result in a score of zero. If you miss two or more exams, only one of those scores will be replaced.) The primary reason for this policy is to offset the impact of zero/low test scores due to emergencies (medical, personal, or otherwise) on a student’s final course grade. Therefore, students should not expect to have the option for a make-up test when such an emergency arises.

Generally, there will be no make-up tests or "re-tests"*. *Exceptions may be made per the Student Academic Adjustments/Auxiliary Aids Policy for students with approved CSD accommodations (see above), as well as for students with an official excused absence as recognized by University of Houston in accordance with federal and state law.

In case of late enrollment or re-registration after being dropped: No make ups will be provided for assignments missed during the “no access to the course” period due to late enrollment or being dropped. Similarly, if students lose access to CASA for not entering access code by the deadline, there will be no make ups for the assignments they missed during that period.

COMMUNICATION via EMAIL

Your instructor will be sending class emails using PeopleSoft; you are responsible for checking your UH email. Per UH Policy, notices properly addressed and so sent (for example, via PeopleSoft) shall be presumed to have been received by the student. Thus, you are responsible for the content in emails sent to your UH account, regardless if your external (non-UH) email provider filters or blocks them. When emailing your instructor, it is recommended that you use a professional email address and include the course name on the subject line so that your instructor can address your questions accordingly. Please read this link for more on communication via email: EMAIL ETIQUETTE (https://www.math.uh.edu/~tomforde/Email-Etiquette.html).

ACADEMIC HONESTY POLICY

University of Houston students are expected to adhere to the Academic Honesty Policy as described in the UH Undergraduate Catalog. “Academic dishonesty” means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at the University of Houston or by a course instructor to fulfill any and all academic requirements. Academic dishonesty includes, but is not limited to, the following: Plagiarism; Cheating and Unauthorized Group Work; Fabrication, Falsification, and Misrepresentation; Stealing and Abuse of Academic Materials; Complicity in Academic Dishonesty; Academic Misconduct. Refer to UH Academic Honesty website and the UH Student Catalog for the definition of these terms and university’s policy on Academic Dishonesty. Anyone caught cheating will be reported to the department for further disciplinary actions, receive sanctions as explained on these documents, and will have an academic dishonesty record at the Provosts office. The sanctions for confirmed violations of this policy shall be commensurate with the nature of the offense and with the record of the student regarding any previous infractions. Sanctions may include, but are not limited to: a lowered grade, failure on the examination or assignment in question, failure in the course, probation, suspension, or expulsion from the University of Houston, or a combination of these. Students may not receive a W for courses in which they have been found in violation of the Academic Honesty Policy. If a W is received prior to a finding of policy violation, the student will become liable for the Academic Honesty penalty, including F grades.
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Posting answers for Poppers or Homework questions online (at group chats or other online tools) is considered an academic honesty violation. Students are expected to know the difference between “getting/giving HELP on a problem” and “getting/giving answers to a problem”. If a student is caught sharing answers (in person or online), he/she might be reported to the departmental hearing officer for an academic honesty violation. If a student becomes aware of cheating or any other violations; that student is responsible for informing the instructor.

**UH CAPS**

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the "Let's Talk" program, a drop-in consultation service at convenient locations and hours around campus.

http://www.uh.edu/caps/outreach/lets_talk.html

**CSD ACCOMMODATIONS**

Academic Adjustments/Auxiliary Aids: The University of Houston System complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for students who have a disability. In accordance with Section 504 and ADA guidelines, University of Houston strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please visit The Center for Students with DISABILITIES (CSD) website at http://www.uh.edu/csd/ for more information.

Accommodation Forms: Students seeking academic adjustments/auxiliary aids must, in a timely manner (usually at the beginning of the semester), provide their instructor with a current Student Accommodation Form (SAF) from the CSD office before an approved accommodation can be implemented.

Details of this policy, and the corresponding responsibilities of the student are outlined in The Student Academic Adjustments/Auxiliary Aids Policy (01.D.09) document under [STEP 4: Student Submission (5.4.1 & 5.4.2), Page 6]. For more information please visit the Center for Students with Disabilities FAQs page.

Additionally, if a student is requesting a (CSD approved) testing accommodation, then the student will also complete a Request for Individualized Testing Accommodations (RITA) paper form to arrange for tests to be administered at the CSD office. CSD suggests that the student meet with their instructor during office hours and/or make an appointment to complete the RITA form to ensure confidentiality. Students should bring a copy of their approved SAF form when meeting with the instructor to complete a RITA form.

*Note: RITA forms must be completed at least 48 hours in advance of the original test date. Please consult your counselor ahead of time to ensure that your tests are scheduled in a timely manner. Please keep in mind that if you run over the agreed upon time limit for your exam, you will be penalized in proportion to the amount of extra time taken. Please keep in mind that if you run over the allotted time indicated on your RITA form, then your exam score will be reduced 1 percentage point for each minute over.
Learning Objectives for Precalculus

1. Recognize various kinds of functions (including polynomial, rational, radical, exponential, and logarithmic functions), analyze their behavior, and use the properties of these functions to solve equations and application problems. Recognize that exponential and logarithmic functions are inverses, recall the characteristics of these functions, and solve equations and application problems involving exponential and logarithmic functions. Apply the concepts learned about limits at infinity to aforementioned functions.

2. Recognize and use the vocabulary of angles (including standard position, initial and terminal sides, quadrantal angles, coterminal angles, acute, right, and obtuse angles). Use degrees and radians to measure angles. Convert angles from degrees to radians and vice versa. Compute the length of a circular arc given the radius and the interior angle. Apply the concepts of linear and angular speed to solve problems concerning motion on a circular path.

3. Use right triangles to evaluate the six trigonometric functions. State the trigonometric function values for $30^\circ$, $45^\circ$, $60^\circ$. Use right triangle trigonometry to solve application problems that can be visualized using right triangles.

4. Compute the six trigonometric functions of any angle and use the unit circle to define the six trigonometric functions for all real numbers. Define the trigonometric functions for any angle. Identify the signs of the trigonometric functions. Find reference angles and use them to evaluate trigonometric functions. Identify even and odd trigonometric functions.

5. Know and draw the graphs of the six trigonometric functions and their variations. Compute the amplitude, period, phase shift, vertical shift, domain, and range of a sinusoidal function. Compute the period, domain, range, vertical asymptotes, and $x$-intercepts of the tangent and cotangent functions. Draw the graphs of $y = \csc x$ and $y = \sec x$; recognize the relationship between the graph of a cosecant function (respectively, secant) and the graph of a sine (respectively, cosine) function.

6. Understand the definitions of the inverse trigonometric functions. Compute the domain and range of the inverse trigonometric functions. Evaluate inverse trigonometric functions using a calculator (*optional). Find exact values of composite functions with inverse trigonometric functions.

7. Know and apply identities involving the trigonometric functions. Use trigonometric identities to simplify expressions and to evaluate the trigonometric functions. Use the trigonometric functions to solve triangles. Use fundamental trigonometric identities to verify other identities. Apply the sum and difference formulas for sine, cosine, and tangent. Apply the double-angle and half-angle formulas for sine, cosine, and tangent.
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Apply the Law of Sines and/or the Law of Cosines either to solve triangles.

8. Find all solutions of a trigonometric equation.
   Solve trigonometric equations quadratic in form.
   Use identities to solve trigonometric equations.

9. Recognize conic sections and their geometric properties.
   Differentiate between four conic sections (circle, ellipse, hyperbola, parabola) using the standard and the
general form of the equations.
   Describe the terms center, foci, vertices, and directrix.
   Graph the conic sections.
   Solve non-linear systems with two variables using algebra and/or graphing.

10. Recognize and use the vocabulary of vectors (vector, scalar, magnitude, direction) to perform
    arithmetic on vectors and to solve application problems.
    Draw the components of a vector.
    Construct a visual representation of scalar multiplication, vector addition, and vector subtraction.
    Find the dot product of two vectors; find the angle between two vectors.
    Use the dot product to determine if two vectors are orthogonal, parallel, or neither.

Precalculus Topic List

Chapter 4: Trigonometric Functions
   Special Right Triangles and Trigonometric Ratios
   Radians, Arc Length and the area of a Sector
   Unit Circle Trigonometry
   Trigonometric Expressions and Identities

Chapter 5: Graphing Trigonometric Functions
   Trigonometric Functions of Real numbers
   Graphs of the Sine and Cosine Functions
   Graphs of the other Trigonometric Functions
   Inverse Trigonometric Functions

Chapter 6: Trigonometric Formulas and Equations
   Sum and Difference Formulas
   The Double-Angle and Half-Angle Formulas
   Solving Trigonometric Equations

Chapter 7: Trigonometric Applications
   Solving Right Triangles
   Area of a Triangle
   The Law of Sines and The Law of Cosines
   Vectors in the Plane
Chapter 8: Analytic Geometry
   Circles
   Ellipses
   Parabolas
   Hyperbolas
   Systems

Algebra Review: Functions
   Methods of Combining Functions
   Inverse Functions
   Polynomial and Rational Functions
   Exponential Functions
   Logarithmic Functions