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| *Panya Sukphranee*  *Office Hours: TH 9a-11a*  *psukphranee@sfsu.edu* | ***San Francisco State University***  ***Department of Mathematics***  ***General Course Syllabus***  **MATH 197 Prelude to Calculus I**  **(4 units)**  **MWF, 1:00P-1:50P, HSS 305** |  |

**Bulletin Description**

Prelude to Calculus I (3 units)

Functions, graphing techniques, exponentials and logarithms.   
(Note: In order for this course to satisfy General Education, students must earn a C- or CR or higher grade if taken fall 2014 or later.)

**Prerequisites:**

Math 197 is recommended for students who placed in Category III or IV for QR/Math, or students who have not passed Math 70 or ESM 70 with a grade of C or better or who have not satisfied the ELM requirement.

Students may select Math 199, the one-semester version of precalculus, or the two-semester version, Math 197 & 198. Both the one-semester version and the year-long version deal with the same topics.

**Course Attributes:**

Pre-requisite to Math 198, and Math 198 meets the B4: Math/QR requirement.

**Purpose and Goals:**

The purpose of this course is to prepare students to succeed in calculus, specifically Math 226 and in future mathematics courses. The prerequisite for Math 226 is a C or higher in Math 198 or 199, and students who earn a B or better in Math 197 have much higher success rates in Math 198 and in calculus.

**Goals** of a Precalculus course:

• To build understanding of specific relationships (functions) and their inverses, through problem solving and reasoning using tables, graphs and equations, and

•. To develop fluency in the use of algebra to solve problems.

**Precalculus Classes**

Success in calculus requires fluency in using algebra, but more than that, success requires you to be able to move easily back and forth among mathematical representations: words, graphs, tables and equations. Graphs and tables, as way to visualize relationships (functions) and reason about them are especially important.

Learning mathematics at the level of understanding needed for calculus requires active participation in problem solving and in explaining your reasoning. Much of the time during this class will be spent working in small groups with other students on the activities and problems with the instructor’s support. Participation and sharing your thinking and questions with other students is the key to learning precalculus.

This means class will generally start with a short introduction to the day’s work and time for questions followed by groupwork where you work with other students to discuss and solve the problems. Your instructor will be going from group to group to support your work and respond to questions, sometimes calling the whole class back together to clarify or share ideas. You will need to keep a record of your work each day.

**Course Content Objectives**

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|  | **Content** | **Approximate**  **Time** |
| Unit 1 | Functions: Exponential, linear and others  • Recognize and move easily between representations for linear and exponential and other functions: tables, graphs, equations, situations.  • Develop fluency transitioning between different forms of equations.  • Solve equations graphically | Week of  Aug 22 for  about  3 weeks |
| Unit 2 | Quadratics: Introducing Parameters and Transformations  • Second differences and quadratic functions  • Effects of parameters on graphs  • Changing algebraic forms and deriving the Quadratic Formula  • Comparing/contrasting quadratic and exponential functions | Week of  Sept 12 for  about  4 Weeks |
| Unit 3 | New Functions from old  • Build new functions by multiplying, dividing and taking roots of given functions, and describe their domains, ranges, and end behaviors.  • Create linear transformations from graphs, equations and tables.  • Compose and decompose functions. | Week of  Oct 10 for  about 3 weeks |
| Unit 4 | Inverse Functions  • Determine whether functions have inverses, and if so, represent the inverse of a given function using a table, an equation and a graph.  • Logarithms as inverse exponential functions.  • Rules of exponents to rules for logs to solving problems involving exponential funcions. | Week of  Oct 31 for about 4 weeks |

**Evaluation**

Evaluation will be based on the problem sets, class participation, mid-unit progress checks, midterm assessments or projects, and a final assessment or project. Problem Sets include problems worked in groups in class or as homework. **Students are expected to attempt every assigned problem**, and if they cannot complete a problem, explain where they had difficulty. Class participation includes working on selected problems from the problem sets with other students and presenting results to the whole class. Progress checks may be given without advance notice and are meant to inform the instructor of how the whole class is understanding the mathematics they are working on. On Progress Checks it is your responsibility to let the instructor what you know and what you don’t understand yet. Projects may be assigned to replace midterm or final exam. The percentages below represent the approximate weighting for grading.

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| Exercises and Problems ( written solutions & explanations) | 30% |
| Class Participation (discussion, group work, presentations) | 5% |
| Progress Checks & End of Class Questions | 5% |
| Midterm Assessments or Projects | 30% |
| Final Assessment or Project | 30% |

**Late Assignments or Missed Exams:**

10% deduction per day after due date.

**Reference Textbook**

Materials for in-class problem solving will be provided on ilearn

Homework problems will be assigned in the online text:

Edfinity: <https://edfinity.com/products/5c776a38346d603ed82ec67a>

#### Add/Drop Deadline: Monday, September 12 is the last day to add classes or drop classes without a W grade.

**Last Day of Classes & Final Exams:** December 9 is the last day of classes. Finals are scheduled December 10-16. The final exam time for this class is:

[check schedule]

1. **Student Conduct Statement:** Students enrolled in the class are expected to adhere to SFSU’s student code of conduct.

**Phones:** If you’re someone who gets distracted easily, make it harder by turning your phone off and putting it away.

1. **Observance of Religious Holidays:** When religious holidays require students to be absent from class activities, the student should inform the instructor, in writing, during the first two weeks of the class. The student will not be penalized, but it is his/her responsibility to make up the work missed.
2. **Statement on Plagiarism:** Plagiarism consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) as one’s own work. Penalties for plagiarism range from 0 or F on a particular assignment, through an F for the course, to expulsion from the university. For more information on the University’s policy regarding cheating and plagiarism, refer to the University Catalog.
3. **Disability Access:** Students with disabilities who need reasonable accommodations are encouraged to contact the instructor.  The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472 or by email ([dprc@sfsu.edu)](mailto:dprc@sfsu.edu)). [http://www.sfsu.edu/~dprc]
4. **Student Disclosures of Sexual Violence:** SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination.  If you disclose a personal experience as an SF State student, the course instructor is required to notify the Dean of Students. To disclose any such violence confidentially, contact:
5. ·     **The SAFE Place** - (415) 338-2208; <http://www.sfsu.edu/~safe_plc/>
6. ·     **Counseling and Psychological Services Center** –
   * 1. (415) 338-2208; <http://psyservs.sfsu.edu/>
7. For more information on your rights and available resources: [http://titleix.sfsu.edu](http://titleix.sfsu.edu/)