THE VICTORIA COLLEGE

Course Syllabus

COURSE TITLE: Pre-Calculus

COURSE IDENTIFICATION: Math 2312.1

Credit Hours: 3
Contact Hours: 48

PREREQUISITES: A grade of C or better in either MATH 1316 or high school trigonometry, and a passing score on the math section of TASP.

DIVISION: Science and Mathematics

DEPARTMENT: Mathematics

PREPARED BY: Babette Lowe

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Office Hours: MW from 9:00 – 9:50 am and 1:00-3:00 pm
TTH from 8:00 – 10:30 am

DATE: Fall, 2004

MATHEMATICS 2312 - PRECALCULUS
Course Outline

PRECALCULUS Mathematics for Calculus 4th Edition
Stewart, Redlin, and Watson

Chapter 1  Fundamentals

1.1 Real numbers
1.2 Exponents and Radicals
1.3 Algebraic Expressions
1.4 Fractional Expressions
1.5 Equations
1.6 Modeling with Equations
1.7 Inequalities
1.8 Coordinate Geometry
1.9 Solving Equations and Inequalities Graphically
1.10 Lines

Chapter 2  Functions

2.1 What is a Function?
2.2 Graphs of Functions
2.3 Applied Functions: Variation
2.4 Average Rate of Change; Increasing and Decreasing Functions
2.5 Transformations of Functions
2.6 Extreme Values of Functions
2.7 Modeling with Functions
2.8 Combining Functions
2.9 One-to-One Functions and their Inverses

Chapter 3  Polynomial and Rational Functions

3.1 Polynomial Functions and their Graphs
3.2 Dividing Polynomials
3.3 Real Zeros of Polynomials
3.4 Complex Numbers
3.5 Complex Zeros and the Fundamental Theorem of Algebra
3.6 Rational Functions

Chapter 4  Exponential and Logarithmic Functions

4.1 Exponential Functions
4.2 Logarithmic Functions
4.3 Laws of Logarithms
4.4 Exponential and Logarithmic Equations
4.5 Modeling with Exponential and Logarithmic Functions

Chapter 5  Trigonometric Functions of Real Numbers

5.1 The Unit Circle
5.2 Trigonometric Functions of Real Numbers
5.3 Trigonometric Graphs
5.4 More Trigonometric Graphs

Chapter 6  Trigonometric Functions of Angles

6.1 Angle Measure
6.2 Trigonometry of Right Triangles
6.3 Trigonometric Functions of Angles
6.4 The Law of Sines
6.5 The Law of Cosines

Chapter 7  Analytic Trigonometry

7.1 Trigonometric Identities
7.2 Addition and Subtraction Formulas
7.3 Double-Angle, Half-Angle, and Product-Sum Formulas
7.4 Inverse Trigonometric Functions
7.5 Trigonometric Equations
7.6 Trig Form of Complex Numbers: DeMoivre’s Theorem
7.7 Vectors
7.8 The Dot Product

Chapter 9  Topics in Analytic Geometry

9.6 Polar Coordinates
COURSE DESCRIPTION FOR MATH 2312:

Pre-Calculus is designed for students with interests in the pure sciences. A strong emphasis is placed on preparing students for the Calculus sequence. Algebraic, polynomial, rational, exponential, logarithmic, and trigonometric functions will be discussed. We will end the course with topics from Analytic Geometry.

COURSE OBJECTIVES:

1. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.

2. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.

3. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.

4. To interpret mathematical models such as formulas, graphs, tables, and schematics, and draw inferences from them.

INSTRUCTIONAL MATERIALS:


Calculators: A scientific calculator is required. If you have to take Calculus, a graphing calculator is recommended.

Recommended: A loose-leaf notebook for storing and maintaining lecture notes, homework, tests, handouts, etc.

INSTRUCTIONAL MODES:

A combination of lecture, class discussion, review, supervised study and text reading assignments will be used. Emphasis will be placed on improving study habits and written and oral communication skills.
CLASS PROCEDURES:

Attendance and tardy records will be kept. Excessive absences may result in being dropped from a course or all courses with a grade of F. See The Victoria College catalogue for official policy in this regard.

GRADING POLICY:

There will be three exams given at intervals of approximately 4 weeks. A comprehensive final exam will be given at the end of the semester. In addition, homework will be collected regularly. Your grade for this course will be computed in two ways. You will receive the higher of the two:

Method I:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Test 1</td>
<td>20%</td>
</tr>
<tr>
<td>Test 2</td>
<td>20%</td>
</tr>
<tr>
<td>Test 3</td>
<td>20%</td>
</tr>
<tr>
<td>Final</td>
<td>30%</td>
</tr>
</tbody>
</table>

Method II:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Highest Test</td>
<td>20%</td>
</tr>
<tr>
<td>2nd Highest Test</td>
<td>20%</td>
</tr>
<tr>
<td>Final</td>
<td>50%</td>
</tr>
</tbody>
</table>

Notice that both methods include the homework average. If you miss an exam, your grade will automatically be computed using method II. No makeup exams will be given.

GRADING SCALE:

A: 90-100;  B: 80-89;  C: 70-79;  D: 60-69;  F: Below 60
OTHER POLICIES:

- A grade of W will be assigned if you drop by Friday of the 12th week of class, or by Friday of the 14th week if you have a passing grade.

- Students requesting disability accommodations are encouraged to contact Counseling Services, Administration II Building, or call 572-6414.

- Cheating will not be tolerated and will result in failure of the course.

FORMULA FOR SUCCESS:

- Do the homework regularly.
- Ask questions when you do not understand.
- Review for exams by studying the homework.
Victoria College Student Services

Additional information on the student support services listed below can be obtained through The Victoria College Student Handbook (www.victoriacollege.edu/pubs/handbook0305.pdf). The Student Handbook is available in hardcopy by contacting any Student Services Office.

Admissions and Records, Administration Building, Suite 107
(361) 572-6408 / www.victoriacollege.edu/dept/admis/

Assessment & Testing Services - Administration Building, Suite 105
(361) 582-2403 / www.victoriacollege.edu/dept/testcenter/
TASP, TASP Alternative COMPASS, ACT, SAT, GED, WORKKEYS, CLEP, Microsoft Office Specialist

Childcare Assistance, Administration Building, Suite 108
(361) 572-6415 / www.victoriacollege.edu/dept/ccta/

Counseling Services (Academic, Personal & Career Counseling), Administration Building, Suite 105 (361) 572-6405 / www.victoriacollege.edu/dept/counseling/

Career Counseling
(361) 582-2514 / www.victoriacollege.edu/dept/career/

On-line counseling
Counselorhelp@boa.victoriacollege.edu

Support Services for Students with Disabilities
(361) 582-2429 | (361) 572-6414 / www.victoriacollege.edu/dept/counseling/suppserv.html

The college will make reasonable accommodations for persons with documented disabilities. These students must notify Curtis Hill in Counseling Services at the above numbers before classroom accommodations can be provided.

Qualified persons with disabilities have specialized services available, which may include: adapted testing, special parking provisions, note-taking assistance, readers, special equipment/equipment adaptation, information and/or referral.

Educational Opportunity Center (EOC) - Student Services Building, Room E
(361) 572-6453 / www.victoriacollege.edu/eoc/
The EOC is a federally funded program providing support services for prospective college ready adults. For details contact the EOC.

Financial Aid - Administration Building, Suite 108
(361) 572-6415 / www.victoriacollege.edu/dept/finaid/

KEY Center, Language Building, Room 102
(361) 582-2414 / www.victoriacollege.edu/dept/sss/
The KEY Center is a federally funded program providing support services for eligible students. For details on eligibility requirements contact the Key Center.

Student Activities Office-Student Center
(361) 572-6440 / www.victoriacollege.edu/dept/stucenter/

Student Employment, Administration Building, Suite 108
(361) 572-6415 / http://www.victoriacollege.edu/dept/stuemploy/

Tutoring Center (FREE)-Language Building, Room 101
(361) 572-6473 / www.victoriacollege.edu/dept/arc/
On-line assistance: tutorhelp@boa.victoriacollege.edu