MATH 151: Applied College Algebra

C-Term, Summer 2014   **Section 002**   **3 Credit Hours**

Instructor: Mr. Hipp   **Office Phone:** 323-4548   **Office Hours:** M 3:30-4:30pm
 Office: Bancroft 169   **Email:** hippb@winthrop.edu   TWTh 1:30-2:30pm
          and by appointment

The instructor reserves the right to make modifications to this syllabus. Students will be notified in class and by email.
A complete syllabus and schedule is available at: faculty.winthrop.edu/hippb/

Grading

Final Grade Computation   **Grading Scale**

Final Grade Computation							
Quizzes 16%	A	93%-100%	B+	87%-89%	C+	77%-79%	D+ 67%-69%
Test One 18%	A-	90%-92%	B	83%-86%	C	73%-76%	D 63%-66%
Test Two 18%			B-	80%-82%	C-	70%-72%	D- 60%-62%
Test Three..........18%							F 0%-59%
Final Exam ....<u>30%</u>							
100%							

Text and Materials

- Required Text: ***Mathematics for Winthrop University***
- MATH151 students are expected to have a scientific calculator.
- Students are encouraged to use office hours as a way to receive extra help.

Assignments/Assessments

Quizzes: Come to class each day prepared for a quiz on the material covered during the previous class meeting.
Test Dates: 6/16, 6/23, 6/30
Final Exam: 7/9

Attendance Policy

The University Attendance policy as stated in the current catalog
(http://www.winthrop.edu/recandreg/default.aspx?id=7380) if a student's absences in a course total 25 percent or more of the class meetings for the course, the student will receive a grade of N if the student withdraws from the course before the withdrawal deadline; after that date, unless warranted by documented extenuating circumstances as described in the previous section, a grade of F or U shall be assigned.

Attendance Policy

The University attendance policy is stated in the current catalog (http://www.winthrop.edu/recandreg/default.aspx?id=7380).

Additional Policies

1. Review the student code of conduct for university polices on academic misconduct. Academic misconduct will not be tolerated and will result in a failing grade on the assignment and/or in the course. The full handbook is available online at: http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf .
2. All electronic devices (including cell phones) other than a calculator should be on silent and kept in your book bag or purse throughout class time unless otherwise instructed. (Note if you have some educational, health, or physical reason for an electronic device you must work with your professor to inform them of the accommodation.)
3. If you miss class, you are responsible for obtaining the notes from a fellow student and the homework assignment from the course web page.
4. Your top ten quiz grades will be used to determine your quiz grade. Make up quizzes will not be given.
5. Students may not use a cell phone, MP3 player, or any other electronic device in the place of a calculator on the tests.
6. Tests are to be taken on the date scheduled. No make-up tests will be given unless prior arrangements are made with the instructor.
7. Students are required to receive a grade of C or better in MATH151 to move on to MATH105.
8. MATH105 uses the same text as MATH151. You are encouraged keep your text and to enroll in MATH105 as soon as possible due to the fact that editions change on a regular rotation.

Course Goals and Alignment with the General Education Goals

The course meets the Quantitative Reasoning requirement through the following goal alignment. Further when not used as the QR requirement, this course meets the Logic, Language, and Semiotics requirement through activities and requirements that require students to: (1) use logic and mathematical information to draw reasonable conclusions and (2) use the symbols and language of mathematics to communicate about problems and present solutions.

Course Goals/SLO	Touchstone Program Goals	University Level Competencies
Use algebraic and geometric methods, modeling, and regression to solve applied problems.	2.1 Solve mathematical problems of the type necessary for living in today's and tomorrow's world.	**Competency 1** **Winthrop graduates think critically and solve problems.** Winthrop University graduates reason logically, evaluate and use evidence, and solve problems. They seek out and assess relevant information from multiple viewpoints to form well-reasoned conclusions. Winthrop graduates consider the full context and consequences of their decisions and continually reexamine their own critical thinking process, including the strengths and weaknesses of their arguments.
Use case studies from a variety of applied contexts as a basis to model meaningful problem situations and reach conclusions.	2.4 Understand the concept and application of quantitative relationships. 2.2 Make valid inferences from data. 2.3 Understand that quantitative analysis is important to almost every endeavor of humankind.	**Competency 3** **Winthrop graduates understand the interconnected nature of the world and the time in which they live.**
Use algebraic techniques to analyze graphs of functions locally, globally, quantitatively, and qualitatively.	3.1 Identify sound and unsound reasoning. 3.2 Analyze and use a variety of information gathering techniques	Winthrop University graduates comprehend the historical, social, and global contexts of their disciplines and their lives. They also recognize how their chosen area of study is inextricably linked to other fields. Winthrop graduates collaborate with members of diverse academic, professional, and cultural communities as informed and engaged citizens.

For purposes of departmental and touchstone program assessment of student learning in this course, sections of the final exam may be tabulated for all students and cover the goals listed above. Individual tests and course grades may also be used as an indication of progress toward the above goals.

Tentative Course Schedule

Sections 1.1 through 1.4 concepts are expected as prerequisite knowledge for MATH151.

Date		Section	Topic	Key Ideas
M	6/9	1.1-1.4 1.5	Brief Review of Prerequisite Material Exponents and Radicals	• Negative and rational exponents: properties, radical notation, rationalizing • First-degree equations: properties, extraneous solutions, absolute values, applications • Quadratic equations: properties, quadratic formula, discriminant, Pythagorean theorem • Graphs: constructing, reading, coordinates, quadrants, intercepts, technology,
T	6/10	1.6	First Degree Equations	
W	6/11	1.7	Quadratic Equations	
Th	6/12	2.1	Graphs	
M	6/16		**Test 1**	
M	6/16	2.2	Equations of Lines	• Geometric/algebraic features of lines: slope, horizontal/vertical lines, constant functions, parallel/perpendicular lines, linear equations • Linear inequalities: solutions, properties, absolute values • Polynomial / rational inequalities: solutions, algebraic methods ,visual estimation • Single variable functions: inputs, outputs, domain, range, notation applications • Graphs: construct, analyze, step functions, plotting points, the vertical line test, technology • Applications: revenue, cost, profit, rates of change, supply, demand, equilibrium
T	6/17	2.4	Linear Inequalities	
W	6/18	2.5	Polynomial & Rational Inequalities	
Th	6/19	3.1 3.2	Functions Graphs of Functions	
M	6/23	3.3	Applications of Linear Functions	
T	6/24		**Test 2**	
T	6/24	3.4	Quadratic Functions	• Quadratic functions: characteristics, parabola, vertex, axis, intercepts • Applications: solutions, algebraic geometric methods, modeling, regression • Polynomial functions: nature, basic properties, graphing techniques • Rational functions: nature, asymptotes, technology, applications • Exponential functions: nature, bases, exponential growth / decay, the number e, analyzing graphs • Applications: solution techniques, specific models
W	6/25	3.5	Applications of Quadratic Functions	
Th	6/26	3.6 3.7	Polynomial Functions Rational Functions	
M	6/30	4.1	Exponential Functions	
T	7/1	4.2	Applications of Exponential Functions	
W	7/2		**Test 3**	
W	7/2	4.3	Logarithmic Functions	• Logarithmic functions: importance, properties, general definition, algebraic properties, change of base formula, inverse relationship between exponential/logarithmic functions • Logarithmic / exponential equations: solutions, identities, applications • Simple interest and discount: computation, future/present values, interest notes, discount notes • Compound interest: computation, discrete compounding, continuous compounding, present value
Th	7/3	4.4	Logarithmic & Exponential Equations	
M	7/7	5.1	Simple Interest and Discount	
T	7/8	5.2	Compound Interest	
W	7/9		**Final Exam**	

Course Withdrawal Deadline: 6/26

MATH151 – Suggested Homework Problems

Prerequisite Practice Problems

    Order of operations: page 10, 19-25 odd

    Inequalities: page 10, 29-33 odd

    Intervals: page 10, 35-43 odd

    Absolute value: page, 11 59-69 odd

    Exponents: page 19, 7-11 odd

    Practice with polynomials: page 19, 13-35 odd

    Factoring: page 27, 1-75 odd

    Rational expressions: page 34, 1-49odd

Section 1.5: 1-21 odd, 43-69 odd, 91-109 odd

Section 1.6: 23, 25, 33-63 odd, 73, 75

Section 1.7: 1-19 odd, 25, 27, 29, 43-51 odd, 55, 57

Case 1: exercises 1-4

Section 2.1: 1-25 odd, 41-61 odd

Section 2.2: 1-23 odd, 41-61 odd, 63-73 odd

Section 2.4: 3-25 odd, 31-47 odd, 51-55 odd

Section 2.5: 1, 5, 9, 13-21 odd, 29-37 odd, 41-47 odd

Case 2: exercises 1-7

Section 3.1: 1-21 odd, 25, 29, 31, 33, 37, 41, 43, 45, 49, 51, 53, 57, 59

Section 3.2: 3-15 odd, 31-37 odd, 47, 51, 53, 57, 59

Section 3.3: 1-27 odd, 33-43 odd, 49, 51

Section 3.4: 7-25 odd, 35-45 odd

Section 3.5: 1-21 odd, 33

Section 3.6: 5-21 odd, 27-31 odd

Section 3.7: 1-21 odd

Case 3: exercises 1-4

Section 4.1: 1-19 odd, 35, 37, 39, 43, 45, 49

Section 4.2: 1-7 odd, 13, 17

Section 4.3: 1-23 odd, 31-41 odd, 47, 49

Section 4.4: 1, 5, 9, 13, 17, 19, 31-49 odd, 53, 57, 59

Section 5.1: 3, 7, 11, 17-43 odd

Section 5.2: 7, 11-15 odd, 19-25 odd, 29, 33, 35, 39-63 odd

Case 5: exercises 1-5