

MATH 1314
College Algebra
(3:3:1)

DEPARTMENT OF MATHEMATICS & ENGINEERING

**ARTS & SCIENCES DIVISION
SOUTH PLAINS COLLEGE**

Spring Semester, 2017
Mr. Robert E. Plant, II

College Algebra General Course Syllabus

Department: Mathematics and Engineering

Discipline: Mathematics

Course Number: Math 1314

Course Title: College Algebra

Credit: 3 **Lecture:** 3 **Lab:** 1

This course satisfies a core curriculum requirement: Yes – mathematics

Prerequisites: 2 years of high school algebra or Math 0320, TSI compliance

Available Formats: conventional/internet/ITV

Campuses: Levelland Campus, Reese Campus, Plainview, Byron Martin ATC Lubbock

Textbook: Blitzer, R. (2014). *College Algebra*, 6th ed. Pearson Education, 2014
(ISBN #978-0-321-78228-1); *Reference text only*

Supplies: calculator with a log function, the course may include online supplemental instruction. Please see the instructor's course information sheet for more on this.

Course Description: A standard course in college algebra. Quadratic equations; ratio and proportion; variation; binomial theorem; inequalities; complex numbers; theory of equations; determinants and matrices.

Course Purpose/Rational/Goal: The purpose of the course is to provide a fundamental background in algebra to meet the mathematics requirement for the core curriculum and to provide a basis for further study in mathematics.

Course Requirements: To maximize the potential to complete this course, a student should attend all class and laboratory meetings, take notes and participate in class, complete all homework assignments and examinations including final examinations.

Student Learning Outcomes/Competencies:

Upon completion of this course and receiving a passing grade, the student will be able to:

1. Demonstrate and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses (Chapter 1—Functions; all sections).
2. Recognize and apply polynomial, rational, radical, exponential and logarithmic functions and solve related equations.
 - a. Chapter 2—Linear Functions
 - i. Section 2.1—Solving Linear Equations
 - ii. Section 2.2—Modeling with Linear Equations
 - iii. Section 2.3—Characteristics of Linear Functions
 - b. Chapter 3—Quadratic Functions
 - i. Section 3.2—Solving Quadratic Equations
 - ii. Section 3.3—Characteristics and Graphs of Quadratic Functions
 - iii. Section 3.4—Quadratic Applications I: Distance Formula
 - c. Chapter 4—Polynomial and Rational Functions
 - i. Section 4.1—Solving Polynomial Equations
 - ii. Section 4.4—Characteristics and Graphs of Polynomial Functions
 - iii. Section 4.5—Solving Rational Equations
 - iv. Section 4.6—Characteristics and Graphs of Rational Functions
 - d. Chapter 5—Exponential and Logarithmic Functions (Basic Transcendental Functions); all sections
 - e. Chapter 6—Other Types of Equations and Inequalities; all sections
3. Apply graphing techniques.
 - a. Chapter 2
 - i. Section 2.4—Graphing Linear Functions
 - ii. Section 2.5—2 by 2 Systems of Linear Equation
 - iii. Section 2.11—Linear Inequalities in Two Variables with Systems
 - b. Chapter 3
 - i. Section 3.3—Characteristics and Graphs of Quadratic Functions
 - ii. Section 3.5—Quadratic Applications II: Circles
 - c. Chapter 4
 - i. Section 4.4—Characteristics and Graphs of Polynomial Functions
 - ii. Section 4.6—Characteristics and Graphs of Rational Functions
 - d. Chapter 5
 - i. Section 5.1—Characteristics and Graphs of Exponential Functions
 - ii. Section 5.2—Characteristics and Graphs of Logarithmic Functions
4. Evaluate all roots of higher degree polynomial and rational functions (Unit 4).
 - a. Section 4.2—Dividing Polynomials
 - b. Section 4.3—Finding Zeros of Polynomials
 - c. Section 4.7—Solving Polynomial Inequalities
 - d. Section 4.8—Solving Rational Inequalities

5. Recognize, solve and apply systems of linear equations using matrices (Chapter 2).
 - a. Section 2.7—Introduction to Matrices; Matrix Solutions to Linear Systems
 - b. Section 2.8—Determinants and Cramer’s Rule

Core Objectives:

Communication Skills:

effective development, interpretation, and expression of ideas through written, oral, and visual communication.

- Develop, interpret, and express ideas through written communication
- Develop, interpret, and express ideas through oral communication
- Develop, interpret, and express ideas through visual communication

Critical Thinking:

creative thinking, innovation, inquiry, analysis, evaluation, and synthesis of information.

- Generate and communicate ideas by combining, changing, and reapplying existing information
- Gather and assess information relevant to a question
- Analyze, evaluate, and synthesize information

Empirical and Quantitative Competency Skills:

the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

- Manipulate and analyze numerical data and arrive at an informed conclusion
- Manipulate and analyze observable facts and arrive at an informed conclusion

MATH 1314—College Algebra
South Plains College, Levelland campus
Spring Semester 2017

Sections: 003, MW, 11:00 AM – 12:45 PM
 006, MW, 2:30 – 4:15 PM
 011, TR, 12:30 – 2:15 PM

Rooms: Levelland Math Bldg., Room 124 (Sections 003 and 006)
 Levelland Math Bldg., Room 112 (Section 011)

Instructor: Mr. Robert E. Plant, II, M.S.

Office Info: Room—Levelland Math Bldg. 116B
 Phone—(806) 716-2734
 Hours—the following table will display the regular office hours.

Monday	Tuesday	Wednesday	Thursday	Friday
<i>13:00 – 14:15</i>	<i>10:45 – 12:00</i>	<i>13:00 – 14:15</i>	<i>10:45 – 12:00</i>	<i>9:00 – 12:00</i>
<i>OR BY APPOINTMENT</i>				

E-mail: rplant@southplainscollege.edu

O.P.I.*: Lecture materials for this course will be provided by the Instructor via Blackboard as made available; this Syllabus is © 2017 by Mr. Robert E. Plant, II
 * O.P. I. means “other pertinent information,” or in layman terms, “something else that you need to know.”

Tutoring: Free tutoring is available in room 116 of the Mathematics-Engineering Building, at the Reese Center campus in Room RC256 and in Building 8, and at the Byron Martin ATC in Lubbock (34th and Avenue Q). (Please remember to verbally request a tutor and to sign in when you seek the help of a tutor in each of these places.)
 Videos for this course are also available. Students are encouraged to view these by using the tapes in Room 116 or by accessing them online via YouTube.
 There are alternate tutoring resources available online for students upon request.

“Your situation will never change unless YOU do! #BeTheChangeYouSeek”

—Instructor

Fundamental Principles of Mathematics

Mathematics is built upon two fundamental principles—pattern recognition and problem solving. Students must become able to recognize patterns in order to solve *types* of problems. Too often have I observed students hang a majority of time up on each specific problem, so it is my mission as your instructor to emphasize that there are sets of problems within the homework (HW) assigned that require *one concept or skill to solve all problems in each set!* It is the ultimate objective of this and any other mathematics course to enable you as the student to become proficient in both of these areas. But until you have reached the point of mastery in both, I submit to you a paraphrase of a quote taken from Tupac Shakur: “**All eyes on me!**”

Guide to Being Successful in This Course

In order for YOU the student to be successful at this or any other level of higher education, YOU must be aware of one very important aspect: student accountability. I as the instructor am accountable for aiding in your success by properly presenting the mathematical concepts of this course, as well as any real-world applications, in a manner that allows for the general group of students to display understanding of said information. YOU as the student are accountable for your success by putting forth the effort necessary to gain such understanding. This is achieved by completing all assignments using the information that I have presented in the lecture and by asking questions regarding any concepts that are not understood. If YOU fail to do what is required in this course, then YOU will be responsible for the just grade that is received.

Guide to Solving Mathematical Problems

When solving a mathematical problem, the following questions must be answered:

Q1. What *known* information does the problem give me?

A1. You will be shown, through examples given by the instructor, how to list the known information of the problem. Use this process unless a more suitable one is known by you. Spare no details until you have *mastered* this concept of setting up the problem. Once you have done so, then you can afford to spare some of the details.

Q2. What information given in the problem do I *not know*, and how do I *find* it?

A2. In this course, you will deal with problems that have unknown information which must be found. Most of these problems will have one unknown; however, there will be a few that will have two, which is the *maximum* number of unknowns that will be examined for any problem. The instructor will show you the procedures necessary for finding these unknowns.

Q3. When is the problem solved or completed?

A3. The problem will be solved or completed *when there is no unknown information remaining*. Each section covered in this course will have problem exercises that are designed to reinforce the concept(s) of the section, and there will be more than one problem assigned per concept (unless otherwise stated by the instructor at the time of assignment).

Expectations of the Student for the Instructor

The Student is within all rights to expect that the Instructor do the following:

- Show up, as scheduled, to teach all information pertaining to the course.
- Use the entirety of the lecture period as well as the allotted lab time for this course.
- Provide notice of any schedule changes.
- Maximize the time allotted for this course by assessing student aptitude of covered information at the close of each lecture, when time permits.
- Present the material in a manner that can generally be understood by the majority of the class.
- Be accessible to those who need assistance outside of the classroom setting, by way of e-mail or in person, during office hours or reasonably scheduled appointment times.
- Respond to all e-mails in a timely and discretionary manner
- Hold to any assignment(s) given during the course of the semester unless removed.
- Uphold the policies of the college as it pertains to the student's welfare in the course.
- Not make any exceptions regarding the dismissal of any student from the course for reasons listed herein.
- Allow each student the opportunity to discuss the material presented during the lecture period.
- Provide examinations based on the information discussed in class that contain problems which use solving methods *similar* to those assigned from sections pertaining to the exam.

Expectations of the Instructor for the Student

The Instructor is within all rights to expect that the Student do the following:

- Show up, as scheduled, to receive and learn all information pertinent to the course and be mindful of any schedule changes.
- Take advantage of *all* resources available to you. These resources, which include the Office Hours and the Tutoring Lab, have been previously stated in the syllabus.
- Be respectful of your peers and the Instructor as stated in the SPC Student Handbook.
 - In the collegiate setting, all students are considered to be adults and are expected to uphold conduct worthy of such consideration.
 - Failure to do so provides sufficient grounds for the Student to be dismissed from the course.
- Be willing to work together with—**BUT NOT DO WORK FOR**—fellow classmates.
 - Networking is an essential tool both in the workforce and in the classroom; furthermore, the greater the numbers of minds there are involved, the less mental labor is required for each individual.
 - No one is an island... *except on the exams!*
- Be mindful of the classroom setting and the roles therein.
 - While student tuition is vital to the well-being of this academic institution, this does NOT warrant the concession of any instructor to you in a manner that compromises the integrity of the classroom setting and that of the institution itself.
- ***Write all graded work legibly and in pencil only. All work not done in pencil will not be accepted by me and will cause you to receive a grade of zero percent (0%) for the work in question.***

- Turn all electronic devices *off* that have no use in the classroom setting.
 - This means all music players, cellular telephones (or cell phones), etc.
 - In the event that a cell phone must be on (family emergencies only), then the phone must be put on vibrate mode and placed on your desk.
 - **Tablets and digital notebooks during lecture are allowed.**
 - If a disallowed device is in use during an exam, then the grade for said exam will be zero percent (0%).
- Bring all materials needed for the course and refrain from bringing anything that is not needed. This allows you to pay attention to the subject matter only and shows me that you are prepared to learn.
- Obtain all missed information and assignments from a fellow classmate.
 - In the spirit of holding to all course objectives in a manner that warrants personal accountability, I will not relay such information unless absolutely necessary.
 - This means that ***if there is no documented reason for missing the information, then find your peers, not me.***
- READ THE SYLLABUS!!!
 - If you lose the copy I give you, then you will have to obtain another copy from Blackboard.
 - There are ***no exceptions*** to this rule!

Attendance Policy

For this course, in order for the Student to maximize the potential to succeed, optimal attendance and promptness on the part of both the Student and the Instructor are necessary. As such, an excess of either absences or tardiness cannot be tolerated from either party. Here are the ground rules for this course regarding attendance:

- Two (2) counts of a student being tardy is equivalent to one (1) count of a student being absent.
- Four (4) absences, or any combination of tardy counts and absences that add to equal four absences, are allowed **for any reason** in this course. ***If this count is exceeded, the Instructor has the right to drop the Student with a grade of X or F.***
- The Student is provided the right to be reinstated to the course, at the discretion of the Instructor, by no later than one week after the initial drop date. All subsequent drops are final.
- All absences that are due to required attendance at SPC-sponsored events will be excused provided that the Instructor is properly notified before said event.
- Unless otherwise notified by the Office of the Dean of Students, no absences due to illness will be treated as excused. Such absences that cause the minimum count to be exceeded will be handled at the Instructor's discretion.
- If the Student has to withdraw from the course, then this action must take place by no later than **April 27, 2017**, which is the last day to withdraw from a course.

Required & Disallowed Materials for the Course

The following materials are required of the Student for this course:

- Pencil—This will be required for all work that is to be graded by the Instructor
- Ruler—This will be required for the Graphing portion of this course
- Multi-subject Notebook (with at least 5 sections)—This will be required for the Student to keep his/her notes; any writing utensil may be used to take notes, and ***the notebook is to be used in this course only***
- Three-ringed Binder, 3” or more thick—This will be required to store all Homework (HW) that is assigned in the course; should be stocked with at least 250 sheets of loose-leaf writing paper and at least 100 sheets of graphing paper, which are sold separately
- **Graphing calculators**—These are allowed in this course and cannot exceed the graphing quality of a TI-84 Calculator; no extra calculators are required of the Instructor to provide in the event of the Student not having his/her own
- Syllabus Acknowledgment of Receipt—The filling in, signing, and returning of said form is prerequisite for any accommodations stated in the syllabus to be recognized for the Student; nonetheless, the Student is still expected to uphold any responsibilities that are stated herein

The following materials and situational items are disallowed in this course:

- Unauthorized calculators—these include ***cell-phone calculators*** and calculators that are of a ***higher quality than a TI-84*** (TI-89, TI *n*-Spire, etc.).
- Pen for doing graded work—use thereof in said circumstance will result in a zero percent (0%) for the assignment in question; circling/boxing answers in pen/highlighter is allowed
- Notes on In-class Exams—use thereof in said circumstance that is not permitted by the Instructor will result in the immediate dismissal of the Student from the course.
- Student Solutions Manuals during class time—Use thereof in said circumstance will result in the Student being dismissed from the classroom and being counted as “tardy” for the day in question

If the Student has any concerns pertaining to the information above on this page, then the Student is to contact the instructor by the means stated in this document. The Instructor cannot be reasonably expected to address any such concerns if no communication is had with the Student.

Have you ever been here?



Grading Policy*

90% or above	A	HW Notebook Checks (2 @ 10%):	20% of overall grade
80-89%	B	HW Assessments (10 @ 2%):	20%
70-79%	C	Mid-term Examinations (4 @ 10%):	40%
60-69%	D	Final examination (cumulative):	20%
59% or below	F		

*All grades are rounded from the first decimal. Borderline grades (within 2% of the minimum) will be handled by the Instructor based on the Student's compliance with the Syllabus. Upon the submission of grades at the end of the semester, **ALL GRADES ARE FINAL!**

HW Grading Rubric

This is the rubric that will be used for the two (2) homework (HW) notebook checks during the semester and the Instructor will hold to this rubric. Each HW notebook check will be worth **10 points** with students required to *have the notebook ready at all times*. There will be 5 criteria evaluated at each check, with each criterion receiving a standard maximum of 2 points:

1. All problems in each section (up to the current section at that time) are attempted, or no more than 1 problem is missing for every 10 problems assigned.
 - a. 2 points if satisfied; +0.5 point if all are attempted and worked
 - b. 1 point if partially satisfied
 - c. 0 points if not satisfied
2. All work is shown for *each* problem, and the Student is using an **authorized** calculator in this course.
 - a. 2 points if satisfied; +0.5 point if *all* answers are correct with work shown
 - b. 1 point if at least half of the problems have work shown with answers
 - c. .5 point if less than half of the problems have work shown with answers
 - d. 0 points if no work is shown with answers OR an unauthorized calculator is used
3. HW is organized based on the lecture calendar, is kept in a 3-ringed binder as per the Syllabus, and is grouped based on the mid-term exams.
 - a. 2 points if completely satisfied; +0.25 point if a copy of the Syllabus is inside; +0.25 point if separated with tabbed sheets
 - b. 1 point if kept in a folder/spiral notebook OR if out of order
 - c. 0 points if not satisfied
4. HW is made available upon request (on time) with all work done in pencil.
 - a. 2 point if completely satisfied; +0.5 point if Acknowledgment of Receipt is submitted before Week 3
 - b. Prorated deduction for all sections not satisfied
 - c. 50% penalty on entire assignment if one class day late; 100% penalty thereafter*
5. Student correctly applies the information presented in the lecture to HW.
 - a. 2 points if completely satisfied;
 - b. 1 point if not completely satisfied, but work is attempted for all sections
 - c. 0 points if all sections are not satisfied

* Extenuating circumstances will be handled at the Instructor's discretion as per the Syllabus.

Holiday/Travel Statement

If you the student have pre-existing plans to either travel out of the area during scheduled class times, you must inform me by **NO LATER THAN Monday, February 6, 2017**. Failure to do so will result in the forfeiture of any assignments that will come into question during your dates of absence.

Religious Holy Days

In accordance with Section 51.911, Texas Education Code, South Plains College will allow a student who is absent from class for the observance of a religious holy day to take an examination or complete an assignment scheduled for that day within seven (7) calendar days after the absence. Students are required to file a written notification of absence with each instructor within the **first fifteen (15) days of the semester** in which the absence will occur. Forms for this purpose are available in the Student Services Office along with instructions and procedures. "Religious holy days" means a holy day observed by a religion whose place of worship is exempt from property taxation under Section 11.20, Tax Code.

(Copied from current South Plains College Catalog)

Final Examination Policy

There will be a final examination for this course. ***All students are required to take this exam at the appointed time listed herein.*** Also, due to the insurance of outcomes assessment at the end of any semester, there will be no guarantee of exemption from the final exam for this course. ***If any exam is missed, then the final will replace ONE such exam upon notification before the exam is scheduled.*** All other exams missed will receive a grade of 0% or be handled at the Instructor's discretion. **If the final exam is missed by any student required to take such, the student will receive a 0% for the final and an "F" for the course!**

Equal Opportunity, Disability, and Diversity Statements

South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability or age.

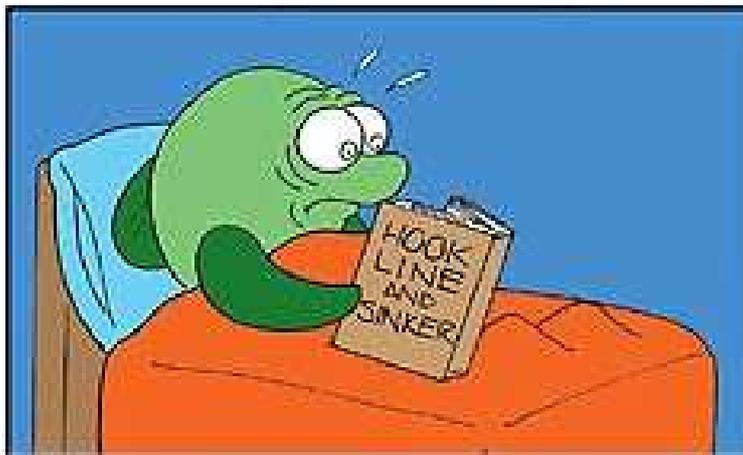
Levelland Campus– Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability. For more information, call or visit the Disability Services Office in the Health & Wellness Center, 806-716-2577.

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Sexual Misconduct Confidentiality Statement

As a faculty member, I am deeply invested in the well-being of each student I teach. I am here to assist you with your work in this course. If you come to me with other non-course-related concerns, I will do my best to help. It is important for you to know, however, that all faculty members are mandated reporters of any incidents of sexual misconduct. That means that I cannot keep information about sexual misconduct confidential if you share that information with me.

Dr. Lynne Cleavinger, the Director of Health & Wellness, can advise you confidentially as can any Counselor in the Health & Wellness Center. They can also help you access other resources on campus and in the local community. You can reach Dr. Cleavinger by phone at 716-2563, by e-mail at lclevinger@southplainscollege.edu, or by going to the Health & Wellness Center. You can schedule an appointment with a Counselor by calling 716-2529.



The “Course Fishing” Rule

This rule has been implemented for the Fall Semester of 2007 and is effective hereafter. As per House Bill 116 (Senate Bill 1231) of the Texas legislature, **all** students will be limited to a total of six (6) mid-semester withdrawals for their entire undergraduate academic career. A mid-semester withdrawal is one that occurs after the twelfth (12th) class day and is noted on the student’s transcript as a “W”, and upon the student receiving the sixth W, all future attempts to withdraw from a course mid-semester will be denied. As a result, a terminal course grade (A, B, C, D, or F) will be issued for the course in question. This does not include any withdrawals acquired by the student before the Fall Semester of 2007, so the count for each student under this rule is currently zero (0). **BE SURE OF YOUR INTENTIONS TO FINISH OUT THE COURSE BEFORE CONTINUING!**

**MATH 1314: Spring Semester 2017
Tentative Lecture & HW Calendar**

Week	Week Day 1	Week Day 2
1 (1/16 to 1/20)	MLK, Jr. Holiday (M) Introduction & Assessment (T)	Introduction & Assessment; 1.1 (W) 1.1 (R)
2 (1/23 to 1/27)	1.2, 1.3, 1.4, 1.5	1.6, 1.7; HW Assessment 1
3 (1/30 to 2/3)	1.8, 1.9	1.10, 1.11; HW Assessment 2
4 (2/6 to 2/10)	1.12, 1.13	Exam 1 Take-Home issued; 2.1, 2.2
5 (2/13 to 2/17)	Exam 1 completed (Take-Home due); 2.3, 2.4	2.5, 2.6; HW Assessment 3
6 (2/20 to 2/24)	2.7	2.8; HW Assessment 4
7 (2/27 to 3/3)	2.9, 2.10	Exam 2 Take-Home issued; 2.11
8 (3/6 to 3/10)	Exam 2 completed (Take-Home due); 3.1, 3.2	3.3; HW Assessment 5
9 (3/13 to 3/17)	SPRING BREAK—NO CLASSES	
10 (3/20 to 3/24)	3.4, 3.5	Exam 3 Take-Home issued; 4.1, 4.2; HW Assessment 6
11 (3/27 to 3/31)	Exam 3 completed (Take-Home due); 4.3, 4.4	4.5, 4.6; HW Assessment 7
12 (4/3 to 4/7)	4.7, 4.8	Exam 4 Take-Home issued; 5.1, 5.2
13 (4/10 to 4/14)	Exam 4 completed (Take-Home due); 5.3	5.4, 5.5; HW Assessment 8
14 (4/17 to 4/21)	Easter Holiday (M) 6.1 (T)	6.1, 6.2 (W) 6.2 (R)
15 (4/24 to 4/28)	6.3; HW Assessment 9	6.4, 6.5
16 (5/1 to 5/5)	6.6*, 6.7*, 6.8*; HW Assessment 10	Q&A—Final Exam Review
17 (5/8 to 5/12)	FINAL EXAMINATION SCHEDULE Monday, 5/8, 10:15 AM – 12:15 PM (Section 003) Wednesday, 5/10, 3:15 – 5:15 PM (Section 006) Thursday, 5/11, 10:15 AM – 12:15 PM (Section 011) ORIGINAL CLASSROOM	

***Time-permitting/Instructor's Discretion**

All problems from each section will be assigned for homework unless changed by the Instructor on the day of lecture. If there is an extenuating circumstance that prevents the Student from interacting with fellow classmate, then the Instructor must be made aware within the first two weeks of class. ***Personal preference does NOT qualify as an extenuating circumstance!***

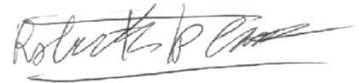
ACKNOWLEDGMENT OF RECIEPT

As a student in this course, I hereby acknowledge that I have received, read, and clearly understood the syllabus. Furthermore, I hold myself accountable for adhering to the expectations stated therein. I also acknowledge that it is my duty and responsibility to notify the instructor of all personal situations that affect my standing in this course before any occur. I am fully aware that any breach of said expectations and responsibilities on my part will result in any necessary consequences that the instructor has stated to me through the syllabus, and that any differences of opinion will be discussed with the instructor in a manner befitting of adults. Finally, in the event of a later dispute by me, I will refer to the syllabus and will, by my signature, forfeit any pursuit that is not backed by the syllabus.

Student's Printed Name

Date of Acknowledgment

Student's Signature



Instructor's Signature

Monday & Wednesday Schedule		Tuesday & Thursday Schedule	
<u>Class</u>	<u>Time</u>	<u>Class</u>	<u>Time</u>