

MATH 2414
Calculus II
(4:3:2)

DEPARTMENT OF MATHEMATICS & ENGINEERING

**ARTS & SCIENCES DIVISION
SOUTH PLAINS COLLEGE**

Fall Semester, 2016
Mr. Robert E. Plant, II

Calculus II General Course Syllabus

Department: Mathematics and Engineering

Discipline: Math

Course Number: Math 2414

Course Title: Calculus II

Credit: 4 **Lecture:** 3 **Lab:** 2

This course satisfies a core curriculum requirement: Yes – Mathematics

Prerequisites: (*courses/TSI compliance*): Trigonometry and Calculus I

Available Formats (*conventional/internet/ITV*): conventional

Campuses: Levelland, Reese

Textbook: Larson, R. and Edwards, B. H. (2010). Calculus, 10th ed., Cengage Learning: Brooks/Cole. ISBN: 978-1-285-05709-5.

Supplies (*computer access/software/art material/camera/instrument*): Calculator: TI-83 or higher, graph paper, and a ruler. On-line quizzes may be required.

Course Specific Instructions (*internet – go to WebCT site etc.*): None

Course Description (*from the catalog*): The purpose/rationale/goal of this course is to provide a rigorous study of differential and integral calculus for transfer into programs requiring a broad foundation of calculus.

Course Purpose/Rationale/Goal – (*what some may call objectives*): The purpose/rationale/goal of this course is to provide a rigorous introductory study of differential and integral calculus for transfer into programs requiring a foundation of calculus.

Course Requirements: To maximize the potential to complete this course, a student should attend all class and laboratory meetings, complete all homework assignments and examinations including final projects and/or examinations.

Attendance Policy: Whenever absences become excessive and, in the instructor's opinion, minimum course objectives cannot be met due to absences, the student will be withdrawn from the course.

Student Learning Outcomes/Competencies:

Upon successful completion of this course, students will:

1. Use the concepts of definite integrals to solve problems involving area, volume, work, and other physical applications. (Chapter 7: “Applications of Integration”; covered in Calculus I)
2. Use substitution, integration by parts, trigonometric substitution, partial fractions, and tables of antiderivatives to evaluate definite and indefinite integrals.
 - a. Section 8.1: “Basic Integration Rules”
 - b. Section 8.2: “Integration by Parts”
 - c. Section 8.3: “Trigonometric Integrals”
 - d. Section 8.4: “Trigonometric Substitutions”
 - e. Section 8.5: “Partial Fractions”
 - f. Section 8.6: “Integration by Tables and Other Integration Techniques”
 - g. Section 8.7: “Indeterminate Forms and L’Hopital’s Rule”
3. Define an improper integral. (Section 8.8, Part I)
4. Apply the concepts of limits, convergence, and divergence to evaluate some classes of improper integrals. (Section 8.8, Part II)
5. Determine convergence or divergence of sequences and series.
 - a. Section 9.1: “Sequences”
 - b. Section 9.2: “Series and Convergence”
 - c. Section 9.3: “The Integral Test and p -Series”
 - d. Section 9.4: “Comparisons of Series”
 - e. Section 9.5: “Alternating Series”
 - f. Section 9.6: “The Ratio and Root Tests”
6. Use Taylor and MacLaurin series to represent functions.
 - a. Section 9.7: Taylor Polynomials and Approximations
 - b. Section 9.8: “Power Series”
 - c. Section 9.9: “Representation of Functions by Power Series”
 - d. Section 9.10: “Taylor and Maclaurin Series”
7. Use Taylor or MacLaurin series to integrate functions not integrable by conventional methods. (See #5)
8. Use the concept of polar coordinates to find areas, lengths of curves, and representations of conic sections. (Covered in Calculus III @ SPC)

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 2414—Calculus II
South Plains College, Reese Center campus
Fall Semester 2016

Section: 200, MW, 5:20-6:55 p.m.

Rooms: Reese Center Campus Bldg. 2, Room 253

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.*: This syllabus is © 2015 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 Building 4, 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.)
There are alternate tutoring resources available online for students upon request.

“True knowledge exists in knowing that you know nothing.”

—Socrates

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.
- 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.
 - If an unsanctioned 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 the course objectives, 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!!!

Attendance Policy

Optimal attendance and promptness on the part of both the Student and the Instructor are necessary in order for the Student to maximize the potential for success in this course; 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.
 - Use of an unauthorized device during lecture is grounds for the Student being counted tardy and dismissed for the lecture period in question.
- 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 **November 17, 2016**, which is the last day to withdraw from a course.
 - Failure to withdraw from the course by the deadline will subject the student to receiving the grade earned at the time of withdrawal.

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—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 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:

- Cell phones—Usage of cell phones during lecture is prohibited in this course
 - Usage during lecture may result in dismissal from lecture and a counted absence
 - Usage during an exam is grounds for immediate dismissal from the course
- Online math answering programs—Programs that provide “solutions” to unworked problems, such as Chegg, MathWay, PhotoMath, and Wolfram Alpha are strictly prohibited from use in this course
 - First Offense—Dismissal from lecture and counted absent
 - Second Offense—Student will be dropped from the course
- TI-89 and *n*-Spire calculators—As the TI-89 can symbolically differentiate as well as integrate, the use thereof is prohibited; as the *n*-Spire calculator can save webpage information, the use thereof is prohibited; cell phone calculator usage is also disallowed; repeated violation will result in the ***dismissal of the Student from the course***
- Pen for doing graded work—Use thereof in said circumstance will result in a zero percent (0%) for the assignment in question
 - All work must be shown in pencil
 - Writing each question in pen is permitted
 - Circling/boxing answers in pen/highlighter is allowed
- Notes on 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 absent 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.

Grading Policy*

90% or above	A	Homework Notebooks: 18% of overall grade
80-89%	B	Short outcomes quizzes: 24%
70-79%	C	In-class examinations: 33%
60-69%	D	Final examination: 25%
59% or below	F	

*All grades are rounded from the first decimal. Borderline grades (those within 2% of the minimum) will be addressed at the instructor's discretion. Upon the submission of grades at the end of the semester, **ALL GRADES ARE FINAL!**

HW Notebook Grading Rubric

This is the rubric that will be used for the 3 homework (HW) notebook checks during the semester and the Instructor will hold to this rubric. Each HW notebook check will be worth **6 points**. There will be 5 criteria evaluated at each check, with each criterion receiving a standard maximum of 1.2 points:

1. All problems in each section are attempted, or no more than 1 problem is missing for every 10 problems assigned.
 - a. 1.5 points if completely satisfied (all problems attempted)
 - b. 1.2 points if sufficiently satisfied (1 missing for every 10 assigned)
 - c. .6 point if partially satisfied
 - d. 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. 1.5 points if **all** answers are correct with work shown
 - b. 1.2 points if completely satisfied
 - c. .6 point if partially satisfied OR an unauthorized calculator (TI *n*-Spire or any calculator that can save webpage information) is used with completed work.
 - d. 0 points if not satisfied OR work is incomplete with an unauthorized calculator
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. 1.2 points if completely satisfied
 - b. .6 point if in a folder/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. 1.2 points if completely satisfied
 - 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. 1.2 points if completely satisfied
 - b. .6 point if not completely satisfied
 - 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 Friday, September 11, 2015**. 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 unless the above statement applies.*** Also, due to the insurance of outcomes assessment, there will be no exemption from the final exam for this course. ***If any exam is missed, then the final will replace only one such exam upon the instructor being notified before the exam is scheduled.*** All other exams missed will receive a 0% grade or be handled at the instructor's discretion. **Failure to take the final exam when required to do so will result in a 0% for the exam 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.

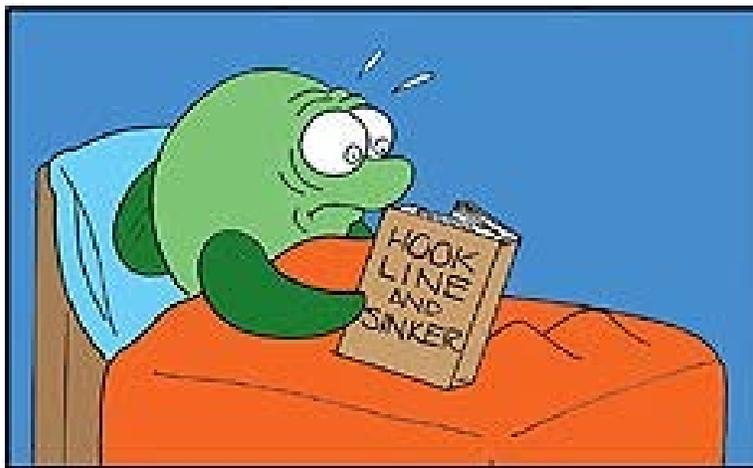
Reese Center and the Byron Martin Advanced Technology Center (ATC)– Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the 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 rooms 809 and 811, Reese Center Building 8, 806-716-4675.

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!**

Mr. Robert E. Plant, II
FALL 2014 LECTURE CALENDAR
MATH 2414

Week	Monday	Wednesday
1 (8/29 to 9/2)	Supplemental Review & Assessment	5.3
2 (9/5 to 9/9)	Labor Day Holiday	5.1, 5.2
3 (9/12 to 9/16)	5.4; Outcomes Quiz 1	5.5
4 (9/19 to 9/23)	6.2; Outcomes Quiz 2	5.6
5 (9/26 to 9/30)	5.7	5.8; Outcomes Quiz 3
6 (10/3 to 10/7)	Exam 1	8.1
7 (10/10 to 10/14)	8.2	8.3; Outcomes Quiz 4
8 (10/17 to 10/21)	8.4	8.5; Outcomes Quiz 5
9 (10/24 to 10/28)	8.7	8.8; Exam 2 Summary
10 (10/31 to 11/4)	Exam 2	9.1
11 (11/7 to 11/11)	9.2	9.3, 9.4; Outcomes Quiz 6
12 (11/14 to 11/18)	9.5	9.6; Outcomes Quiz 7
13 (11/21 to 11/25)	9.8, 9.9	Thanksgiving Holiday
14 (11/28 to 12/2)	9.7, 9.10	Outcomes Quiz 8; Exam 3 Summary
15 (12/5 to 12/9)	Exam 3	Final Exam Review
16 (12/12 to 12/16)	FINAL EXAMINATION SCHEDULE Wednesday, 12/14, 5:30 – 7:30 PM ORIGINAL CLASSROOM	

Mr. Robert E. Plant, II
TENTATIVE HOMEWORK CALENDAR
MATH 2414

Week	Monday	Wednesday
1 (8/29 to 9/2)	Supplemental Review & Assessment	5.3— Every 5 th to #80
2 (9/5 to 9/9)	Labor Day Holiday	5.1—Every 5 th to #90 5.2— Every 5 th to #90
3 (9/12 to 9/16)	5.4— Every 5 th to #135	5.5— Every 5 th to #105
4 (9/19 to 9/23)	6.2— Every 5 th to #65	5.6— Every 5 th to #95
5 (9/26 to 9/30)	5.7— Every 5 th to #80	5.8— Every 5 th to #100
6 (10/3 to 10/7)	Exam 1	8.1— Every 5 th to #90
7 (10/10 to 10/14)	8.2— Every 5 th to #90	8.3— Every 5 th to #85
8 (10/17 to 10/21)	8.4— Every 5 th to #65	8.5— Every 5 th to #40
9 (10/24 to 10/28)	8.7— Every 5 th to #85	8.8— Every 5 th to #90
10 (10/31 to 11/4)	Exam 2	9.1— Every 5 th to #80
11 (11/7 to 11/11)	9.2— Every 5 th to #75	9.3— Every 5 th to #65
12 (11/14 to 11/18)	9.4— Every 5 th to #50 9.5— Every 5 th to #80	9.6— Every 5 th to #90
13 (11/21 to 11/25)	9.8— Every 5 th to #65 9.9— Every 5 th to #60	Thanksgiving Holiday
14 (11/28 to 12/2)	9.7— Every 5 th to #60 9.10— Every 5 th to #75	Exam 3 Summary
15 (12/5 to 12/9)	Exam 3	Final Exam Review
16 (12/12 to 12/16)	FINAL EXAMINATION SCHEDULE Wednesday, 12/14, 5:30 – 7:30 PM ORIGINAL CLASSROOM	

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 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>