C. MATHEMATICS SYLLABI

PRPM 0011	Introductory Algebra
PRPM 0012	Intermediate Algebra
PRPM 0022	Pre-Calculus

Course Title: PRPM 0011: Introductory Algebra

Semester Credit Hours: 0

I. Course Overview

This course is an introduction to mathematical thinking in the context of the real number system and functional relationships. To assist in solving problems, the course incorporates the use of technology, specifically graphing calculators and Excel spreadsheets.

II. PMU Competencies and Learning Outcomes

The study of mathematics in the PMU Preparation Year Program is more than covering a list of concepts or skills. In keeping with this goal, Introductory Algebra is student-centered and promotes exploration into quantitative methods and how they are useful in life experiences. The course actively strives to build a community of learners with a commitment to understanding and intellectual growth. This community occurs through teamwork, focusing on the day-to-day challenges of reading, writing, conversation, and problem solving. Key to the format is the concept known as social construction of knowledge. The course also places emphasis on using the graphing calculator and Excel spreadsheets. The course, therefore, addresses critical thinking and problem solving, communication, leadership, team building, and technological competence.

III. Detailed Course Description

Introductory Algebra is taught in English to advance students' abilities to think mathematically in the English language. The course topics include: mathematical structure, variables and relationships; the whole number, integer, rational number, and real number systems; functional relationships; and linear and quadratic functions. Among the mathematical skills the students will develop are the ability to view interrelated principles of mathematics, reason mathematically, communicate mathematically, and synthesize mathematical ideas and problem solving approaches.

IV. Requirements Fulfilled

This course is required of all PMU students entering the Preparation Year Program.

V. Required Prerequisites

This course requires satisfactory completion of high school algebra.

VI. Learning Outcomes

A. To view mathematics as a system of interrelated principles.

B. To reason mathematically.

C. To communicate mathematics accurately, verbally, in writing, and in the use of various representations.

D. To use a variety of tools, physical models, and appropriate technology to demonstrate an understanding of concepts and relationships and their applications in the world in which we live.

E. To think critically as they analyze problems.

F. To reflect on what they know, and how they know it.

G. To make conjectures, present arguments to support or explain conjectures.

H. To develop the habit of looking for counter-examples.

I. To synthesize the key mathematical ideas and problem-solving approaches by applying them to diverse problems and by exploring the interconnections between them using appropriate technologies.

VII. Assessment Strategy

A. Assessment

Assessment in the mathematics courses will focus on two factors: assessment of mathematical competencies, and assessment of the PMU core competencies. These will closely follow the techniques established in the text for the course, *Mathematical Investigations*. Assessment methods, as established by this text, include the following activities:

- Investigations – A series of inquiry exercises that discover mathematical concepts and develop answers to questions through class activities are the cornerstone of the course. Students will work in teams to complete Investigations given in the text. Attendance during the Investigations and completion of the Investigations are critical for success.
- Explorations – Each section of the text ends with a set of Explorations. Each Exploration begins with a request that the student builds and maintains a glossary of key words and phrases. Completion of the glossary is critical since understanding mathematical vocabulary plays a key role in developing mathematical power. Completion of all Explorations will be expected.
- Concept Maps – Concept Maps are visual methods of displaying knowledge of a given concept. Critical components of a Concept Map include a central concept, a set of related concepts, and links between concepts demonstrating relationships.

- Reflections – Reflections require students to reflect on what they have learned in the given section and preceding sections. Most require the student to write a paragraph or two discussing an important mathematical idea.
- Unit Problem Sets – There will be three cumulative problem sets. They will be distributed during the fifth, ninth, and fifteenth weeks of the semester.
- Journals – At the beginning of each week, students will submit a journal entry that requires analysis the concepts they learned the previous week.
- Final Exam – Students will sit for a comprehensive test designed to measure the mathematical skills covered in the course.
- Portfolio – Students will be required to keep a notebook (typically, a three-ring binder) containing all their work for the semester, with the exception of the Investigations and glossary, which will be completed on pages provided in the text. The binder will include completed Explorations, Concept Maps, Reflections, Journals, Unit Problem Sets, and in-class assessments. These documents, along with the completed Investigations and the glossary, will be the primary evidence for the student's grade.

B. Grading

Semester grades will be determined by a combination of final exam and the instructor's assessment of student performance on the activities noted above. During class periods, the instructor will make observational assessments designed to assess performance and assist students in achieving goals or improving their work. On written work, the instructor will note the quality of the work and areas needing improvement. These will become part of the student's course Portfolio.

VIII. Course Format

Class time will include the following activities:

- Investigations: student-centered activities from the text designed to promote active involvement with the course material. These activities will usually occur in small groups.
- Whole class discussion: instructor- or student-led discussion of course concepts or problems.
- In-class assessments: individual and group problem sessions designed to assess student understanding of material.
- Laboratory sessions will provide students time to complete the group and individual assignments that have not been completed in class, or those assigned as out-of-class exercises. The instructor will supervise these sessions.

Classroom Hours (6 hours per week) **Class:** 2 hours, twice a week
Lab: 1 hour, twice a week

IX. Topics to be Covered

A. What Is Mathematics? Introducing Structure, Variables, and Relationships
   1. Learning mathematics
   2. Thinking mathematically
   3. Using variables to generalize
   4. Expanding the notion of variable
   5. Making connections: What does it mean to do mathematics?

B. Whole Numbers: Introducing a Mathematical System
   1. Whole number domains
   2. Order of operations with whole numbers
   3. Algebraic extensions of order of operations to polynomials
   4. Properties that change the order of operations
   5. Making connections: What does it mean to generalize?

C. Functional Relationships
   1. Investigating relationships numerically
   2. Function: Algebraic representation
   3. Function: Geometric representation
   4. Triangular numbers
   5. Making Connections: What is a function?

D. Integers
   1. Integers and the algebraic extension
   2. Operation on integers
   3. The absolute value function
   4. Graphing with integers
   5. Using a graphing utility
   6. Functions over the integers
   7. Making connections: How do integers explain the mathematics?

E. Rational Numbers: Further Expansion of a Mathematical System
   1. Rates of change
   2. Rational numbers, rational expressions, and proportional reasoning
   3. Investigating rational number operations
   4. Reciprocal functions and variation
   5. Integer exponents and exponent properties
   6. Making connections: Is there anything rational about functions?

F. Real Numbers: Completing a Mathematical System
   1. Real numbers and the algebraic extension
   2. The square root function
   3. Classes of basic functions
   4. Linear functions
   5. Quadratic functions
   6. Making connections: Is there really a completion to the number system?

G. Answering Questions With Linear and Quadratic Functions
   1. Linear equations and inequalities in one variable
   2. Systems of equations
   3. Factoring quadratic functions with integer zeros
   4. Factoring quadratic functions with rational zeros
   5. Making connections: Linking multiple representations of functions

X. Laboratory Exercises

Laboratory sessions will provide students time to complete the group and individual assignments that have not been completed in class, or those assigned as out-of-class exercises. These sessions will require no special laboratory equipment or facilities and may be completed on the students' laptop computers. The instructor will supervise these sessions:

- Explorations
- Concept maps
- Reflections
- Unit problem sets
- Journals

XI. Technology Component

Students use graphing calculators regularly in conjunction with the text. The graphing calculator is a function machine that has the capability of displaying both input and output on the screen simultaneously so that students can obtain immediate feedback, discover patterns, and identify their previously learned misconceptions. Students will also have access to Microsoft Excel on their laptop computers that can be used in some of the investigations and explorations to achieve similar goals.

XII. Special Projects/Activities

There are no special projects required for this course.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

DeMarois, Phil, Mercedes McGowen, and Darlene Whitkanack. *Mathematical Investigations*. Second Edition. Dubuque, Iowa: Kendall/Hunt Publishing Company, 2004.
ISBN: 0-7575-0390-X

B. Alternative Textbooks

None

C. Supplemental Print Materials

1. *Graphing Calculator Manual for Mathematical Investigations*
   NOTE: This supplement contains reference manuals for TI-82, TI-83, and TI-83 Plus graphing calculators, as well as an index of procedures for each model.
2. *Student's Solutions Manual for Mathematical Investigations* (Optional)
3. *Instructor's Solutions Manual and Resource Guide for Mathematical Investigations*.
   NOTE: This supplement contains fully worked-out solutions to all explorations and review exercises in the text. It also contains sample group and individual skills exams, extensive resources for alternative assessment, teaching notes for each chapter, sample syllabi, classroom-management tips for teaching in a collaborative setting, and black-line masters.

D. Supplemental Online Materials

None

E. Other

1. TI-83, or TI-83 Plus graphing calculator
2. Microsoft Office software which includes EXCEL
3. Laptop computer

Course Title: PRPM 0012: Intermediate Algebra

Semester Credit Hours: 0

I. Course Overview

A continuation of PRPM 0011, this course focuses on mathematical thinking and data analysis applied to linear, quadratic, rational, logarithmic, and exponential functions. The course incorporates the use of technology to help solve problems, specifically through the use of graphing calculators and Excel spreadsheets.

II. PMU Competencies and Learning Outcomes

Like its predecessor, Introductory Algebra, this course does more than cover a list of concepts or skills. Intermediate Algebra is student-centered and promotes exploration into quantitative methods and how they are useful in life experiences. The course will actively strive to build a community of learners through teamwork and a focus on the day-to-day challenges of reading, writing, conversation, and problem solving. Key to the format is the concept known as social construction of knowledge. The course also emphasizes use of the graphing calculator and Excel spreadsheets. The course therefore addresses critical thinking and problem solving, communication, leadership, team building, and technological competence.

III. Detailed Course Description

Intermediate Algebra is taught in English to advance students' abilities to think mathematically in the English language. The course topics include: working with data, rates of change, creating models, comparing different mathematical models, polynomial functions, non-polynomial functions, and transcendental models. Among the mathematical skills the students will develop are the ability to view interrelated principles of mathematics, reason mathematically, communicate mathematically, and synthesize mathematical ideas and problem solving approaches.

IV. Requirements Fulfilled

This course is required of PMU students intending to major in interior design (College of Engineering) or one of the programs offered by the College of Business Administration.

V. Required Prerequisites

This course requires satisfactory completion of PRPM 0011: Introductory Algebra.

VI. Learning Outcomes

A. To view mathematics as a system of interrelated principles.

B. To reason mathematically.

C. To communicate mathematics accurately, verbally, in writing, and in the use of various representations.

D. To use a variety of tools, physical models, and appropriate technology to demonstrate an understanding of concepts and relationships and their applications in the world in which we live.

E. To think critically as they analyze problems.

F. To reflect on what they know, and how they know it.

G. To make conjectures, present arguments to support or explain conjectures.

H. To develop the habit of looking for counter-examples.

I. To synthesize the key mathematical ideas and problem-solving approaches by applying them to diverse problems and by exploring the interconnections between them using appropriate technologies.

VII. Assessment Strategy

A. Assessment

Assessment in the mathematics courses will focus on two factors: assessment of mathematical competencies, and assessment of the PMU core competencies. These will closely follow the techniques established in the text for the course, *Applying Algebraic Thinking to Data.* Assessment methods, as established by this text, include the following activities:

- Investigations – A series of inquiry exercises that discover mathematical concepts and develop answers to questions through class activities are the cornerstone of the course. Students will work in teams to complete Investigations given in the text. Attendance during the Investigations and completion of the Investigations are critical for success.
- Explorations – Each section of the text ends with a set of Explorations. Each Exploration begins with a request that the student builds and maintains a glossary of key words and phrases. Completion of the glossary is critical since understanding mathematical vocabulary plays a key role in developing mathematical power. Completion of all Explorations will be expected.
- Concept Maps – Concept Maps are visual methods of displaying knowledge of a given concept. Critical components of a Concept Map include a central concept, a set of related concepts, and links between concepts demonstrating relationships.
- Reflections – Reflections require students to reflect on what they have learned in the given section and preceding sections. Most require the student to write a paragraph or two discussing an important mathematical idea.

- Unit Problem Sets – There will be three cumulative problem sets. They will be distributed during the fifth, ninth, and fifteenth weeks of the semester.
- Journals – At the beginning of each week, students will submit a journal entry that requires analysis the concepts they learned the previous week.
- Final Exam – Students will sit for a comprehensive test designed to measure the mathematical skills covered in the course.
- Portfolio – Students will be required to keep a notebook (typically, a three-ring binder) containing all their work for the semester, with the exception of the Investigations and glossary, which will be completed on pages provided in the text. The binder will include completed Explorations, Concept Maps, Reflections, Journals, Unit Problem Sets, and in-class assessments. These documents, along with the completed Investigations and the glossary, will be the primary evidence for the student's grade.

B. Grading

Semester grades will be determined by a combination of final exam and the instructor's assessment of student performance on the activities noted above. During class periods, the instructor will make observational assessments designed to assess performance and assist students in achieving goals or improving their work. On written work, the instructor will note the quality of the work and areas needing improvement. These will become part of the student's course Portfolio.

VIII. Course Format

Class time will include the following activities:

- Investigations: student-centered activities from the text designed to promote active involvement with the course material. These activities will usually occur in small groups.
- Whole class discussion: instructor- or student-led discussion of course concepts or problems.
- In-class assessments: individual and group problem sessions designed to assess student understanding of material.
- Laboratory sessions will provide students time to complete the group and individual assignments that have not been completed in class, or those assigned as out-of-class exercises. The instructor will supervise these sessions.

Classroom Hours (6 hours per week) **Class:** 2 hours, twice a week
Lab: 1 hour, twice a week

IX. Topics to be Covered

A. Working with Data
   1. Distributions of data
   2. Relations, functions, and measures of central tendency
   3. Representations of functions
   4. Function notation
   5. Working with data: Review

B. Constant and Accelerated Change
   1. Rates of change
   2. Number sequences
   3. Generalizing sequences
   4. Domain and range: Crucial considerations
   5. Constant and accelerated change: Review

C. Expressing Situations Involving Change Algebraically
   1. Linear models for change
   2. Exponential models for change
   3. Building quadratic models
   4. Liner, exponential, and quadratic models for change
   5. Expressing situations involving change algebraically: Review

D. Data: Creating Models and Answering Questions
   1. Exploring the meaning of mathematical actions
   2. What does it mean to solve?
   3. Models and their representations
   4. Applying linear models to data
   5. Applying exponential models to data
   6. Applying polynomial models to data
   7. Data: Creating models and answering questions: Review

E. Considering Several Models Simultaneously
   1. Comparing models: An introduction to systems of equations
   2. More manipulations of systems of equations
   3. Organizing information to create systems
   4. Coded messages and the algebra of matrices
   5. Matrices and linear systems: An auspicious partnership
   6. Considering several models simultaneously: Review

F. Manipulating Quadratic Models
   1. Key features: Intercepts, zeros, and factors
   2. Graphical analysis of quadratic models
   3. Finding foots
   4. The reality of complex numbers
   5. General solution procedures for quadratic equations
   6. Manipulating quadratic models: Review

G. Non-Polynomial Algebraic Functions
   1. Rational functions
   2. Using operations to investigate rational functions
   3. Roots extended
   4. Rational exponents
   5. Distance formula and radical equations
   6. Non-polynomial algebraic functions: Review

H. Transcendental models
   1. Inverse relationships
   2. Exponential models revisited
   3. Logarithmic function introduction
   4. Logarithmic models
   5. Transcendental models: Review

X. Laboratory Exercises

Laboratory sessions will provide students time to complete the group and individual assignments that have not been completed in class, or those assigned as out-of-class exercises. These sessions will require no special laboratory equipment or facilities and may be completed on the students' laptop computers. The instructor will supervise these sessions:

- Explorations
- Concept maps
- Reflections
- Unit problem sets
- Journals

XI. Technology Component

Students use graphing calculators regularly in conjunction with the text. The graphing calculator is a function machine that has the capability of displaying both input and output on the screen simultaneously so that students can obtain immediate feedback, discover patterns, and identify their previously learned misconceptions. Students will also have access to Microsoft Excel on their laptop computers that can be used in some of the investigations and explorations to achieve similar goals.

XII. Special Projects/Activities

There are no special projects required for this course.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

DeMarois, Phil, Mercedes McGowen and Darlene Whitkanack. *Applying Algebraic Thinking to Data*, Second Edition. Dubuque, Iowa: Kendall/Hunt Publishing Company, 2004.
ISBN: 0-7575-0388-8

B. Alternative Textbooks

None

C. Supplemental Print Materials

1. *Graphing Calculator Manual for Applying Algebraic Thinking to Data*
2. *Student's Solutions Manual for Applying Algebraic Thinking to Data* (Optional)

D. Supplemental Online Materials

None

E. Other

1. TI-83, or TI-83 Plus graphing calculator
2. Microsoft Office software which includes EXCEL
3. Laptop computer

Course Title: PRPM 0022: Pre-Calculus

Semester Credit Hours: 0

I. Course Overview

This course provides an overview of pre-calculus mathematics with an emphasis on elementary functions and their applications. The course incorporates the use of technology to help solve problems, specifically through the use of graphing calculators and Excel spreadsheets.

II. PMU Competencies and Learning Outcomes

Pre-calculus is a student-centered approach to mathematics that is more than a list of rote concepts or skills. It promotes exploration into quantitative methods and how they are useful in life experiences. Using teamwork, a focus on the day-to-day challenges of reading, writing, conversation, and problem solving, the course will strive to build a community of learners with a commitment to understanding and intellectual growth. Key to the format is concept known as social construction of knowledge. The course emphasizes the use of the graphing calculator and Excel spreadsheets. The course therefore addresses critical thinking and problem solving, communication, leadership, team building, and technological competence.

III. Detailed Course Description

Pre-calculus is taught in English to advance students' abilities to think mathematically in the English language. The course topics include: introduction to functions, linear and exponential models, transformations of functions, exponential and logarithmic functions, polynomial and rational functions, periodic functions, triangle trigonometry, and parametric equations. Among the mathematical skills the students will develop are the ability to view interrelated principles of mathematics, reason mathematically, communicate mathematically, and synthesize mathematical ideas and problem solving approaches.

IV. Requirements Fulfilled

This course is required of PMU students intending to pursue majors in the College of Engineering (other than interior design) and the College of Information Technology.

V. Required Prerequisites

This course requires satisfactory completion of PRPM 0011: Introductory Algebra.

VI. Learning Outcomes

A. To view mathematics as a system of interrelated principles.

B. To reason mathematically.

C. To communicate mathematics accurately, verbally, in writing, and in the use of various representations.

D. To use a variety of tools, physical models, and appropriate technology to demonstrate an understanding of concepts and relationships and their applications in the world in which we live.

E. To think critically as they analyze problems.

F. To reflect on what they know, and how they know it.

G. To make conjectures, present arguments to support or explain conjectures.

H. To develop the habit of looking for counter-examples.

I. To synthesize the key mathematical ideas and problem-solving approaches by applying them to diverse problems and by exploring the interconnections between them using appropriate technologies.

VII. Assessment Strategy

A. Assessment

Assessment in the mathematics courses will focus on two factors: assessment of mathematical competencies, and assessment of the PMU core competencies. These will closely follow the techniques that the student learned in PRPM 0011 using the text *Mathematical Investigations.* Assessment methods, as established by this text, include the following activities:

- Investigations – A series of inquiry exercises that discover mathematical concepts and develop answers to questions through class activities are the cornerstone of the course. Students will work in teams to complete Investigations given in the text. Attendance during the Investigations and completion of the Investigations are critical for success.

- Explorations – Each section of the text ends with a set of Explorations. Each Exploration begins with a request that the student builds and maintains a glossary of key words and phrases. Completion of the glossary is critical since understanding mathematical vocabulary plays a key role in developing mathematical power. Completion of all Explorations will be expected.

- Concept Maps – Concept Maps are visual methods of displaying knowledge of a given concept. Critical components of a Concept Map include a central concept, a set of related concepts, and links between concepts demonstrating relationships.

- Reflections – Reflections require students to reflect on what they have learned in the given section and preceding sections. Most require the student to write a paragraph or two discussing an important mathematical idea.
- Unit Problem Sets – There will be three cumulative problem sets. They will be distributed during the fifth, ninth, and fifteenth weeks of the semester.
- Journals – At the beginning of each week, students will submit a journal entry that requires analysis the concepts they learned the previous week.
- Final Exam – Students will sit for a comprehensive test designed to measure the mathematical skills covered in the course.
- Portfolio – Students will be required to keep a notebook (typically, a three-ring binder) containing all their work for the semester, with the exception of the Investigations and glossary, which will be completed on pages provided in the text. The binder will include completed Explorations, Concept Maps, Reflections, Journals, Unit Problem Sets, and in-class assessments. These documents, along with the completed Investigations and the glossary, will be the primary evidence for the student's grade.

B. Grading

Semester grades will be determined by a combination of final exam and the instructor's assessment of student performance on the activities noted above. During class periods, the instructor will make observational assessments designed to assess performance and assist students in achieving goals or improving their work. On written work, the instructor will note the quality of the work and areas needing improvement. These will become part of the student's course Portfolio.

VIII. Course Format

Class time will include the following activities:

- Introductory Activities: student-centered activities from the text designed to promote active involvement with the course material. These activities will usually occur in small groups.
- Whole class discussion: instructor- or student-led discussion of course concepts or problems.
- In-class assessments: individual and group problem sessions designed to assess student understanding of material.
- Laboratory sessions will provide students time to complete the group and individual assignments that have not been completed in class, or those assigned as out-of-class exercises. The instructor will supervise these sessions.

Classroom Hours (6 hours per week) **Class:** 2 hours, twice a week
Lab: 1 hour, twice a week

IX. Topics to be Covered

A. Introducing Functions
   1. Defining functions
   2. Using functions to model the real world
   3. Watching function values change

B. Linear and Exponential Models
   1. Introducing linear models
   2. Introducing exponential models
   3. Linear model upgrades

C. Transforming Functions
   1. Transformations
   2. Sequential relationships
   3. Inverse relationships

D. Exponential and Logarithmic Functions
   1. Exponential functions
   2. The natural exponential function
   3. Logarithmic functions
   4. Logarithmic transformations
   5. Logistic growth

E. Polynomial and Rational Functions
   1. Quadratic functions and models
   2. Polynomial functions and models
   3. Rational functions and models

F. Periodic Functions
   1. The sine and cosine functions
   2. Circular functions and their graphs
   3. Sinusoidal models
   4. Inverse circular (trigonometric) functions

G. Triangle Trigonometry
   1. Right triangles and trigonometric functions
   2. The trigonometry of non-right triangles
   3. Angles, arc lengths, and radians

H. Multiple Inputs/Multiple Outputs
   1. Functions with more than one input variable
   2. Parametric equations – motion along a line
   3. Parametric equations – motion along a curve

X. Laboratory Exercises

Laboratory sessions will provide students time to complete the group and individual assignments that have not been completed in class, or those assigned as out-of-class exercises. These sessions will require no special laboratory equipment or facilities and may be completed on the students' laptop computers. The instructor will supervise these sessions:

- Chapter exercises
- Projects and explorations
- Journals
- Labs

XI. Technology Component

Students use graphing calculators regularly in conjunction with the text. The graphing calculator is a function machine that has the capability of displaying both input and output on the screen simultaneously so that students can obtain immediate feedback, discover patterns, and identify their previously learned misconceptions. Students will also have access to Excel on their laptop computers that can be used in some of the investigations and explorations to achieve similar goals.

XII. Special Projects/Activities

There are no special projects required for this course.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Moran, Judith Flagg, Marsha Davis and Mary Murphy. *Precalculus Concepts in Context,* Second Edition. Belmont, California: Brooks/Cole-Thomson Learning, 2004.
ISBN 0-5343-6240-0

B. Alternative Textbooks

None

C. Supplemental Print Materials

1. *Student Solutions Manual for Precalculus Concepts in Context* (Optional)
2. *Precalculus Concepts in Context: Instructor's Resource Manual with Solutions*
   NOTE: The manual contains valuable tips for using the text, including suggestions for conducting a lab period, promoting group work, making effective use of the write-in features, and fostering good writing in lab reports. It contains sample syllabi for courses of various lengths. It gives detailed section-by-section commentary, presenting the rationale for each section and concrete ways of communicating the ideas to students. A key feature of the

manual is several pages of specific suggestions for evaluating lab reports for each of the 14 labs. It also contains a map that illustrates the sections to which each problem in the end-of-chapter problem sets corresponds. Most importantly, it provides worked out solutions to all of the problems in the text.

3. *Graphing Calculator Manual for Precalculus Concepts in Context*
   NOTE: The manual provides instructions for the TI-83 Plus, 85/86, 89, 92 Plus and Voyage 200. Each section begins with a tutorial on the basics of each calculator, such as navigating the keyboard, basic calculations, graphing, and troubleshooting, followed by text-specific instructions of the concepts covered in each chapter.
4. *Test Bank*
   NOTE: The Test Bank includes four tests per chapter as well as two final exams. The tests are made up of a combination of multiple-choice, free-response, true/false, and fill-in-the-blank questions.
5. *Brooks/Cole Assessment (BCA) Instructor Version*
   BCA Tutorial Student Version
   NOTE: The instructor version includes BCA Testing and BCA Tutorial. BCA Testing is an Internet-ready, text-specific testing suite that allows instructors to customize exams and track student progress in a browser-based format. BCA Tutorial is a text-specific, interactive tutorial software program delivered via the Web and is offered in both student and instructor versions.

D. Supplemental Online Materials

None

E. Other

1. TI-83 Plus, 85/86, 89, 92 Plus or Voyage 200 graphing calculator
2. Microsoft Office software which includes EXCEL
3. Laptop computer

D. STUDY SKILLS AND LEARNING STRATEGIES SYLLABI

PRPL 0011	Theories and Applications of Learning I
PRPL 0012	Theories and Applications of Learning II

Course Title: PRPL 0011: Theories and Applications of Learning I

Semester Credit Hours: 0

I. Course Overview

This course focuses on models of academic success founded on an understanding of learning theories from the fields of education and psychology and the application of those theories throughout the semester. Through a combination of guided application of learning strategies, individual academic advising, and instruction in and daily use of technology, students will learn the skills necessary to achieve academic success.

II. PMU Competencies and Learning Outcomes

Students will learn time management skills, interpersonal communication skills, and effective learning strategies through applied use throughout the semester. Students will have to demonstrate initiative and work ethic that serve as the foundation for professional competency as they apply the pro-active academic behavior necessary for success in university studies. Students will improve their oral and written communication skills through large and small group discussions, reading activities, and response journal writing. Assigned group work will develop communication, teamwork, and leadership skills. Students will develop technology skills through the use of the Internet and Microsoft Word, Outlook, and Power Point, including e-mail, word processing, planners, and presentation software.

III. Detailed Course Description

PRPL 0011 is designed to increase the opportunity for success of first year students. The course teaches proven academic learning strategies that require in-depth analysis and consistent application, resulting in academic success and preparation for professional careers. These skills and strategies include goal setting, time management, self-assessment of preferred learning styles and career aptitudes, academic reading, note-taking, test taking, memory techniques, and use of technology (Microsoft software applications) for class and homework assignments.

IV. Requirements Fulfilled

This course is required for all students in the PMU Preparation Year Program.

V. Required Prerequisites

Students must have achieved EFL Level 3 proficiency or higher, either by successful completion of EFL Level 2 or by class assignment following placement tests at the beginning of the Preparation Year Program. Students in EFL Levels 1 or 2 will be placed in a special section of PRPL 0011 that will cover the same skills and subject material using lower-level English skills and limited use of Arabic.

VI. Learning Outcomes

A. To learn time management skills that help students succeed in academic programs.

B. To develop awareness of preferred learning styles and to practice others that increase students' probability of academic success.

C. To develop responsibility for learning through the practice of proactive academic behaviors such as initiative, self-management, and honesty.

D. To develop basic reading skills through consistent practice of information management skills (preview, outlining, predicting, summarizing, and synthesizing).

E. To practice learning strategy skills such as memory, note-taking, and test taking.

F. To explore goal setting and increase motivation for academic success

G. To develop interpersonal skills that aid in positive relationship development with peer leaders, instructors, and fellow classmates.

H. To increase oral communication skills through group work.

I. To increase written communication skills through journal writing and information restructuring exercises.

J. To use Microsoft Word and Outlook for word processing and e-mail, and to use the Internet for research assignments.

K. To develop study skills through required attendance at Preparation Year Program study labs.

VII. Assessment Strategy

Students learn positive academic behaviors through consistent practice. Attainment of course objectives will be measured by a variety of in class and homework assignments. These include:

40%	Restructured notes and daily homework
10%	Microsoft Outlook and grade record sheets
20%	Regular attendance and participation in study workshops
10%	Advisor meetings
10%	Daily journal/ Microsoft Word
5%	Quizzes
5%	Class presentations/Microsoft Power Point

Restructuring is a continuous weekly assignment that requires students to apply learning strategies they have been taught to content they are responsible for covering in their other classes. Restructuring constitutes a major portion of the grade because the best assessment measure is the application of learning strategies.

Students will be required to keep a binder that organizes all assessment measures listed above, as well as grade progress reports of their other classes.

VIII. Course Format

The course will consist of short lectures, class discussion, individual and group work assignments.

Classroom Hours (3 hours per week) **Class:** 3
Workshop: 5 hours/wk

IX. Topics to be Covered

A. Introduction
   1. Goal setting
   2. Discovery wheel and learning styles
   3. Personality profile- Myers Briggs

B. Computer Literacy and Resources
   1. Microsoft Word - journals
   2. Internet resources
   3. Microsoft PowerPoint – basic introduction

C. Time management
   1. Microsoft Outlook (including planner, e-mail, and task agenda)
   2. Setting priorities
   3. Procrastination

D. Restructuring content
   1. Restructuring guidelines and purpose
   2. Review of basic restructuring approaches
   3. Matching restructuring to your assignments

E. Reading
   1. Previewing
   2. Notations
   3. Reviewing
   4. Summarizing

F. Note taking
   1. Lectures – observing, recording, reviewing
   2. Reading – taking notes as students read

G. Memory
   1. Visualization
   2. Other techniques

H. Test Taking
   1. Cooperative learning
   2. Essay tests
   3. Integrity
   4. Predicting test questions
   5. Overcoming anxiety

X. Laboratory Exercises

This course requires 5 hours a week attendance at supervised study workshops for completion of out-of-class assignments and tutoring.

XI. Technology Component

A. Students will learn software application programs since such programs will be the delivery methods for both in-class and homework assignments at the PMU. Required writing assignments including daily journals must be submitted electronically using Microsoft Word and the university's course management program. Microsoft Outlook will be used on a daily basis to teach time management, task organization, e-mail, and other standard business functions. Students will be introduced to basic PowerPoint for group presentation at end of term.

B. Most homework assignments can be completed using the students' personal laptop computers. Others may utilize a computer lab during periods outside the regular class times.

XII. Special Projects/Activities

- A small group oral presentation making use of Microsoft PowerPoint as part of the final exam.
- Weekly meetings with academic counselors.

XIII. Textbooks and Teaching Aids

A. Required Textbooks

Ellis, Dave. *Becoming a Master Student*. Tenth edition. Boston, Massachusetts, USA: Houghton Mifflin, 2003.
ISBN: 061820678-7

B. Alternative Textbooks

Hooper, Carolyn H. *Practicing College Learning Strategies*, Third edition, Boston, Massachusetts, USA: Houghton Mifflin, 2004.
ISBN: 0-618-33350-9

C. Supplemental Print Materials

1. Houghton Mifflin *College Survival Planner* (included in HM package)
2. Myers-Briggs Type Indicator (included in HM package)

D. Supplemental Online Materials

None

E. Other

Microsoft Office Suite (Outlook, Word, Access, Excel, Power Point, FrontPage)

Course Title: PRPL 0012: Theories and Applications of Learning II

Semester Credit Hours: 0

I. Course Overview

This course builds on the learning strategies, computer literacy skills, and self-management skills that students have gained in PRPL 0011: Theories and Applications of Learning I. The foundations of critical thinking will be introduced as well as the development of team communication skills, global awareness, and electronic resource skills. Through continued guided application of learning strategies, individual academic advising, computer software applications, and discussion of career and professional development issues, students will continue to build on the skills necessary to achieve academic success.

II. PMU Competencies and Learning Outcomes

Students will continue developing skills that will help them succeed in academic courses and prepare them for university level study. Class discussions and participation in activities focusing on issues important to their success will help them achieve the desired PMU competencies. Communication skills will be enhanced through oral and written, individual and group assignments. Teamwork skills will be developed through study and application of effective discussion strategies leading to consensus building and product improvement. Leadership skills will be developed through development of self-discipline and work ethic. Critical thinking and problem solving skills will be built through daily application of learning strategies. Technological competencies will be further developed through more in-depth instruction in the use of the Microsoft Office suite of software and electronic resources.

III. Detailed Course Descriptions

PRPL 0012 is designed to increase students' self-management and learning skills and to introduce students to topics critical to academic or professional success. These include but are not limited to: communication theory, diversity issues, computer literacy through software instruction and application, electronic resource skills, career development, and the foundations of critical thinking. The course teaches students proven academic learning strategies requiring in-depth analysis and consistent application.

IV. Requirements Fulfilled

This course is required for all students in the PMU Preparation Year Program.

V. Required Prerequisites

Students must have earned at least a grade of "C" or better in PRPL 0011. They must have achieved EFL Level 4 proficiency or higher, either by successful completion of EFL Level 3 or by class assignment following placement tests at the beginning of the Preparation Year Program.

VI. Learning Outcomes

New

A. To develop critical thinking and problem solving skills through individual and group assignments.

B. To develop diversity awareness and the skills necessary to benefit from it.

C. To learn about resources (student services, library and Internet resources, and finance) and profit from them by applying critical thinking skills where applicable.

D. To develop high standards for performance including academic honesty and strong work ethic.

E. To expose students through academic advising and discussion to career options and job skills required for those careers.

F. To develop skills in conflict resolution and consensus building communication.

G. To develop skills in public speaking.

H. To develop basic competency in Microsoft Excel, Access, and FrontPage; electronic resource and Internet searches; and software downloads.

Continued

I. To implement time management skills that help students succeed in academic programs.

J. To develop awareness of preferred learning styles and to practice others that increase students' probability of academic success.

K. To develop responsibility for learning through the practice of pro-active academic behaviors such as initiative, self-management, and honesty.

L. To develop basic reading skills through consistent practice of information management skills (preview, outlining, predicting, summarizing, and synthesizing).

M. To practice learning strategy skills such as memory, note-taking, and test taking.

N. To explore goal setting and increase motivation for academic success.

O. To develop interpersonal skills that aid in positive relationship development with peer leaders, instructors, and fellow classmates.

P. To increase oral communication skills through group work.

Q. To increase written communication skills through journal writing and information restructuring exercises.

R. To build on computer literacy skills developed during the first semester by continued use of Microsoft Outlook, Word, and PowerPoint for class assignments and by further instruction in electronic research skills.

S. To develop study skills through scheduled homework hours during the day and evening.

VII. Assessment Strategy

Students learn positive academic behaviors through consistent practice. Attainment of course objectives will be measured by a variety of in class and homework assignments. These include:

40%	Restructured notes and daily homework, including Microsoft Office-based projects
10%	Microsoft Outlook and grade record sheets
20%	Regular attendance and participation in required study workshops
10%	Advisor meetings
10%	Daily journal - Microsoft Word
5%	Quizzes
5%	Class presentations/Microsoft Power Point

Restructuring is a continuous weekly assignment that requires students to apply learning strategies they have been taught to content they are responsible for covering in their other classes. Restructuring constitutes a major portion of the grade because it is the best assessment of application of learning strategies.

Students will be required to keep a binder that organizes all assessment measures listed above as well as grade progress reports of their other classes.

VIII. Course Format

The course will consist of short lectures, class discussion, individual and group work assignments.

Classroom Hours (3 hours per week) **Class:** 3
Workshops: 5 hours/wk

IX. Topics to be Covered

A. Introduction and Review
   1. Time management
   2. Restructuring
   3. Effective reading strategies test questions
   4. Effective note-taking strategies
   5. Effective test-taking strategies

B. Computer Literacy and Resources
   1. Microsoft Excel
   2. Microsoft Access
   3. Microsoft FrontPage
   4. Microsoft PowerPoint
   5. Electronic Resources: Library

C. Critical Thinking and Problem Solving
   1. Critical thinking
   2. Assumptions
   3. Decision making
   4. Problem solving

D. Communicating
   1. Listening
   2. Writing
   3. Constructive criticism
   4. Conflict management

E. Diversity
   1. Living with diversity
   2. Communicating with other cultures
   3. Adapting to the culture of higher education

F. Professional Development
   1. Attitudes
   2. Career planning
   3. Job skills
   4. Portfolios

X. Laboratory Exercises

This course requires 5 hours per week attendance at study workshops and/or tutoring.

XI. Technology Component

A. Students will learn software application programs since such programs will be the delivery methods for both in-class and homework assignments. Required writing assignments including daily journals must be submitted electronically through the university's course management program. Microsoft Outlook will be used on a daily basis to teach time management, task organization, e-mail, and Microsoft Office (Word, Excel, Access, PowerPoint, and FrontPage) will be taught and applied to daily assignments. Research projects will require the use of electronic resources and internet use.

B. Most homework assignments can be completed using the students' personal laptop computers. Others may utilize a computer lab during periods outside the regular class times.

XII. Special Projects/Activities

- Oral presentations making use of Microsoft PowerPoint as part of the final exam.
- Weekly meetings with academic counselors

XIII. Textbooks and Teaching Aids

A. Required Textbooks

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C. Supplemental Print Materials

1. *Houghton Mifflin College Survival Planner* (included in HM package)
2. Myers-Briggs Type Indicator (included in HM package)

D. Supplemental Online Materials

None

E. Other

Microsoft Office and accompanying instructional texts.