EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis, Associate Dean, Math and Sciences
PRESENTER: JoAnn Lewin, Mathematics Department Chair
DATE: April 23, 2010

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☐	**Change to course description**
☐	**Change to course co-requisites**
☒	**Change to course prerequisites**
☐	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☐	**Other (specify)**

Course Name, including prefix and number: **MAC2311: Calculus with Analytic Geometry I**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

MAC1140 and MAC1114 with a minimum grade of "C" in each course OR MAC1147 with a minimum grade of "C" OR appropriate CLM Score

to

MAC1140 and MAC1114 with a minimum grade of "C" in each course OR MAC1147 with a minimum grade of "C"

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION: **The math faculty felt that the CLM test did not adequately identify students whose preparation in, and knowledge of trigonometry was sufficient for success in the calculus sequence (MAC2311 – MAC2313). Since Edison State College offers students the opportunity to earn credit in MAC1147 by passing the CLEP test, a mechanism is already available to students who want to be placed directly into MAC2311.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:
The district mathematics department approved the recommendation for this change during its February 12, 2010 meeting.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ **DATE:** _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 2311 – CALCULUS WITH ANALYTIC GEOMETRY I – AA – 4 CREDIT HOURS

This course is designed for students majoring in science, mathematics, or engineering. Topics include: limits, differentiation and integration of algebraic, trigonometric, logarithmic and exponential functions and applications. **This course is sequential with MAC 2312 and MAC 2313. A graphing calculator is required.** If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAC 1140 and MAC 1114 with a minimum grade of "C" in each course, or MAC 1147 with a minimum grade of "C"

III. GENERAL COURSE INFORMATION: Topic outline

- Review of Functions
- Limits and Continuity
- The Derivative
- Differentiation of Algebraic Functions
- Differentiation of Transcendental Functions
- Mean-Value Theorem and Intermediate Value Theorem
- Extrema and Graph Sketching
- Area and the Definite Integral
- Antidifferentiation
- Fundamental Theorem

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:

General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Analyze functions graphically, numerically, and analytically.	HOMEWORK and/or QUIZZES and/or TESTS and/or GROUP ASSIGNMENTS and/or PROJECTS	
Calculate limits and discuss continuity using algebra, limit theorems, graphs and tables of data.		TIM
Calculate the slope of a tangent line and the instantaneous rate of change using the derivative.		
Appropriately apply the derivative to solve problems, including those involving related rates and optimization.		COM
Differentiate algebraic functions expressed in explicit or implicit form using the sum, product, quotient, and/or chain rules as appropriate.		
Differentiate trigonometric, exponential, and logarithmic functions expressed in explicit or implicit form using the sum, product, quotient, and/or chain rules as appropriate.		
Calculate a derivative using the techniques of logarithmic differentiation when appropriate.		
Apply the Mean Value and Intermediate Value Theorems.		
Determine critical numbers and inflection points for a function through calculating and analyzing the first and second derivatives and sketch the graph of the function using this information.		CT
Construct a definite integral to determine an indicated area and calculate the area.		
Determine antiderivatives using basic integration rules		QR

and/or substitution.		
Evaluate definite integrals by using properties of integrals and the Fundamental Theorem of Calculus.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

Edison State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus.

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO:	CURRICULUM COMMITTEE
FROM:	Theo Koupelis, Associate Dean, Math and Sciences
PRESENTER:	JoAnn Lewin, Mathematics Department Chair
DATE:	April 23, 2010

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☐	**Change to course description**
☐	**Change to course co-requisites**
☐	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☐	**Other (specify)**

Course Name, including prefix and number:

MAC 1105: College Algebra
MAC 1106: Combined College Algebra/Pre-Calculus
MAC 1114: Trigonometry
MAC 1140: Pre-Calculus Algebra
MAC 1147: Pre-Calculus Algebra/Trigonometry
MAC 2233: Calculus for Business and Social Sciences I
MAC 2311: Calculus with Analytic Geometry I
MAC 2312: Calculus with Analytic Geometry II
MAC 2313: Calculus with Analytic Geometry III
MAP 2302: Differential Equations I
MAT 1033: Intermediate Algebra
MGF 1106: Mathematics for Liberal Arts I
MGF 1107: Mathematics for Liberal Arts II
MTB 1308: TI Graphing Calculators
SLS 1533: Improving Mathematics Skills by Reducing Anxiety
STA 2023: Statistical Methods I

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from to

Change in co-requisite from to

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION: **The Learning Outcomes of the syllabi attached to this proposal have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____Date_____

Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:
The district mathematics department approved the recommendation for this change during its February 12, 2010 meeting.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ **DATE:** _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 1105 – COLLEGE ALGEBRA – AA – 3 CREDIT HOURS

Topics include linear, quadratic, rational, radical, exponential, and logarithmic functions. Graphing and applications are emphasized. A graphing calculator is required. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAT 1033 or higher with a minimum grade of "C," or Testing

III. GENERAL COURSE INFORMATION: Topic outline

- Functions and functional notation
- Domains and ranges of functions
- Graphs of functions and relations
- Operations on functions
- Inverse functions
- Linear, quadratic, and rational functions
- Absolute value and radical functions
- Exponential and logarithmic properties, functions, and equations
- Systems of equations and inequalities
- Applications (such as curve fitting, modeling, optimization, exponential and logarithmic growth and decay)
- Use of a graphing calculator

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Express the domain and range of a function (defined algebraically or graphically) using both set-builder and interval notation.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	
Evaluate functions, including piecewise-defined functions.		
Perform operations on functions, including compositions and difference quotients.		
Evaluate and interpret the slope and y-intercept of a line, both analytically and graphically.		TIM
Interpret slope as a rate of change.		
Construct the equation of a line using a point and the slope or two points.		
Determine the distance between two points.		
Apply the Pythagorean Theorem to real world examples.		
Graph relations and functions.		
Use transformation techniques (on known or given functions) to construct the graphs of related functions.		
Determine and defend whether a function is one-to-one, and if so, find its inverse algebraically and/or graphically.		
Graph by identifying distinguishing characteristics, and differentiating among: linear, quadratic, rational, radical, absolute value, exponential, and logarithmic functions.		COM

Determine the optimum value of a quadratic function.		
Evaluate logarithmic and exponential expressions.		
Manipulate and solve exponential and logarithmic equations by applying the properties of logarithms and exponents.		
Select and apply which of the techniques, elimination, substitution, or graphing would be most efficient to solve systems of linear and non-linear equations.		QR
Graph the solution to systems of inequalities.		
Read, interpret, and solve application problems through the use of a variety of techniques.		CT

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

Edison State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus.

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 1106 – COMBINED COLLEGE ALGEBRA/PRE-CALCULUS – AA – 5 CREDIT HOURS

Major topics of this course include: functions and relations including domain and range, operations on functions, and inverse functions, polynomial, rational and other algebraic functions, their properties and graphs; polynomial, absolute value, rational equations and inequalities; exponential and logarithmic functions, their properties and graphs; solving systems of equations and inequalities, matrices, determinants; piecewise-defined functions; conic sections; sequences and series; applications such as curve fitting, modeling, optimization, and exponential and logarithmic growth and decay; mathematical induction; binomial theorem and applications. A graphing calculator is required. Credit is not given for both MAC 1106 and MAC 1105, or for both MAC1106 and MAC 1140. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAT 1033 with a minimum grade of "B," or Testing

III. GENERAL COURSE INFORMATION: Topic outline

- Functions and relations including domain and range, operations on functions and inverse functions
- Polynomial, rational and other algebraic functions, their properties and graphs
- Polynomial, absolute value and rational equations and inequalities
- Exponential and logarithmic functions, their properties and graphs
- Solving systems of equations and inequalities
- Matrices and determinants
- Piecewise-defined functions
- Conic sections
- Sequences and series
- Applications such as curve fitting, modeling, optimization, and exponential growth and decay
- Mathematical induction
- The binomial theorem

- Use of a graphing calculator

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Express the domain and range of a function (defined algebraically or graphically) using both set-builder and interval notation.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	
Evaluate and apply appropriate mathematical properties to graph functions, including piecewise-defined functions, and perform operations on functions, including compositions and difference quotients.		
Evaluate and interpret the slope and y-intercept of a line, both analytically and graphically, including interpreting slope as a rate of change.		TIM
Construct the equation of a line using a point and the slope or two points.		
Determine the distance between two points.		
Apply the Pythagorean Theorem to real world examples.		
Use transformation techniques (on known or given		

functions) to construct the graphs of related functions.		
Determine and defend whether a function is one-to-one, and if so, find its inverse algebraically and/or graphically.		
Graph by identifying distinguishing characteristics, and differentiating among: linear, quadratic, polynomial of degree greater than two, rational, radical, absolute value, exponential, and logarithmic functions.		
Determine the optimum value of a quadratic function graphically using the graphing calculator and algebraically.		
Apply properties, algebraic techniques, and technology to evaluate exponential and logarithmic expressions, to solve exponential and logarithmic equations and to interpret the solutions.		QR,
Use multiple approaches to solve systems of linear and non-linear equations and compare and contrast those approaches.		COM
Read, interpret, and solve application problems through the use of a variety of techniques.		
Determine the complex zeros, real zeros and linear factorization of a polynomial.		
Solve polynomial and rational inequalities graphically and algebraically.		
Construct the graph of the solution to systems of inequalities.		
Perform matrix operations and find and use inverses and determinants.		
Determine the equation of a conic section when given its graph or characteristics of its graph. Graph the conic section, given its equation.		
Analyze sequences and series using patterning, formulas, and/or technology and extend these concepts to the use of mathematical induction and the binomial theorem.		
Use a graphing utility to determine a curve of best fit for given data.		CT

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

Edison State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to

the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus.

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 1114 – TRIGONOMETRY – AA – 3 CREDIT HOURS

This course involves solving equations by using trigonometric functions and their inverses along with trigonometric identities. Additional skills include solving triangles, graphing trigonometric functions and polar equations, operating with vectors, and applying a variety of these skills. The course contains all of the features of trigonometry found in MAC 1147, with additional emphasis on applications. A graphing calculator is required. This course may be taken concurrently with MAC 1140. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAC 1105 or MAC1106 with a minimum grade of "C" in either course or appropriate CLM Score

III. GENERAL COURSE INFORMATION: Topic outline

- The trigonometric functions, their properties and graphs
- Inverse trigonometric functions, their properties and graphs
- Trigonometric identities
- Conditional trigonometric equations
- Solutions of triangles
- Vector algebra
- Parametric equations
- Polar coordinates
- Applications

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Evaluate trigonometric functions for special angles given in degrees and radians without a calculator.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	
Evaluate trigonometric and inverse trigonometric functions related to an angle in degrees or radians by using a graphing calculator.		
Analyze trigonometric functions and identify properties such as domain, range, amplitude, period, phase shift, and vertical shifts when appropriate.		TIM
Graph trigonometric functions and their inverses both analytically and using a graphing utility.		CT
Evaluate inverse trigonometric functions involving numeric values and algebraic expressions analytically.		
Select and apply appropriate fundamental trigonometric identities, including double angle formulas.		
Prove trigonometric identities.		
Solve trigonometric equations.		QR
Solve right triangles using definitions of the trigonometric functions and oblique triangles using the Law of Sines and the Law of Cosines.		
Perform basic vector operations including the dot product.		
Sketch a curve that is represented by a set of parametric equations.		
Graph polar equations.		
Convert points and equations from polar form to rectangular form and vice versa		

Solve application problems using trigonometry.		COM

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts & Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 1140 – PRE-CALCULUS ALGEBRA – AA – 3 CREDIT HOURS

This is an algebra class designed to prepare students to enter either engineering or calculus courses. Topics covered include exponential and logarithmic functions, polynomials, rational functions, conic sections, sequences and series, mathematical induction, the binomial theorem, and matrices. A graphing calculator is required. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAC 1105 with a minimum grade of "C" or appropriate CLM score

III. GENERAL COURSE INFORMATION: Topic outline

- Polynomial, rational, and other algebraic functions, their properties and graphs
- Polynomial and rational inequalities
- Exponential and logarithmic functions, their properties and graphs
- Piecewise defined functions
- Conic sections
- Matrices and determinants
- Sequences and series
- Mathematical induction
- Binomial Theorem
- Applications

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Determine the complex zeros, real zeros and linear factorization of a polynomial.	Students will demonstrate competency via one or more of the following assessment techniques: Written Assignments Presentations Homework Labs Group assignments Projects Quizzes Tests Final examination	
Sketch and analyze the graphs of polynomial and rational functions, including determining any asymptotes, intercepts and other critical values both algebraically and using technology.		
Solve polynomial and rational inequalities graphically and algebraically.		
Apply properties, algebraic techniques, and technology to solve exponential and logarithmic equations and interpret the solutions.		QR
Sketch and analyze the graphs of exponential and logarithmic functions.		
Apply appropriate mathematical properties to graph and interpret continuous and piece-wise functions.		
Determine the equation of a conic section given its graph or characteristics of its graph and vice versa.		
Perform matrix operations and find and use inverses and determinants.		
Use multiple approaches to solve systems of linear and non-linear equations and compare and contrast those approaches.		COM
Analyze sequences and series using patterning, formulas, and/or technology and extend these concepts to the use of mathematical induction and the binomial theorem.		TIM

Use a graphing utility to determine a curve of best fit for given data.		CT

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 1147 – PRE-CALCULUS ALGEBRA/TRIGONOMETRY – AA – 5 CREDIT HOURS

The course is designed for students with strong mathematical backgrounds who need a refresher course before beginning the Calculus sequence. Topics covered are a combination of topics from MAC 1140 and MAC 1114. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement. Credit is not given for both MAC1147 and MAC1114, or for both MAC1147 and MAC1140.

II. PREREQUISITES FOR THE COURSE:

MAC 1105 with a minimum grade of "B," or appropriate CLM Score and high school trigonometry

III. GENERAL COURSE INFORMATION: Topic outline

- Polynomial, rational and other algebraic functions, their properties and graphs
- Polynomial and rational inequalities
- Exponential and logarithmic functions, their properties and graphs
- Piece-wise defined functions
- Conic sections
- Matrices and determinants
- Sequences and series
- Mathematical induction
- The binomial theorem
- Trigonometric functions, their properties and graphs
- Inverse trigonometric functions, their properties and graphs
- Trigonometric identities
- Conditional trigonometric equations
- Solutions of triangles
- Vector algebra
- Parametric equations
- Polar coordinates

- Applications

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Determine the real zeros, complex zeros and linear factorization of a given polynomial.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	
Sketch and analyze the graphs of exponential, logarithmic, polynomial, and rational functions, including determining any asymptotes, intercepts, and other critical values both algebraically and using technology..		
Solve polynomial and rational inequalities graphically and algebraically.		
Apply properties, algebraic techniques, and technology to evaluate or simplify exponential and logarithmic expressions, to solve exponential and logarithmic equations and to interpret the solutions.		QR
Apply appropriate mathematical properties to graph and interpret continuous and piece-wise function.		
Determine the equation of a conic section when given its graph or characteristics of its graph. Graph the conic section, given its equation.		

Perform matrix operations and find and use inverses and determinants.		
Use multiple approaches to solve systems of linear and non-linear equations and compare and contrast those approaches.		COM
Analyze sequences and series using patterning, formulas, and/or technology and extend these concepts to the use of mathematical induction and the binomial theorem.		
Use a graphing utility to determine a curve of best fit for given data.		CT
Evaluate trigonometric functions for special angles given in degrees and radians without a calculator.		
Evaluate trigonometric functions and inverse trigonometric functions related to angles in degrees or radians using a graphing calculator.		
Apply appropriate right triangle and/or unit circle trigonometric function definitions to determine the values of a variety of trigonometric functions.		
Select and apply appropriate fundamental trigonometric identities, double angle identities, half-angle identities, or sum or difference identities.		
Solve right triangles using definitions of the trigonometric functions, and oblique triangles using the Law of Sines and the Law of Cosines.		
Analyze trigonometric functions and identify such properties as domain, range, amplitude, period, phase shift, and vertical shifts, when appropriate.		TIM
Graph trigonometric functions, inverse trigonometric functions, and polar equations both analytically and by using a graphing utility.		
Evaluate inverse trigonometric functions involving numeric values and algebraic expressions.		
Solve application problems using trigonometry.		
Prove trigonometric identities.		
Solve trigonometric equations.		QR
Perform basic vector operations including dot product.		
Sketch a curve that is represented by a set of parametric equations.		
Convert points and equations from polar form to rectangular form and vice versa		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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Collier Campus	Admin. Bldg. A-116	(239) 732-3918
Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 2233 – CALCULUS FOR BUSINESS AND SOCIAL SCIENCES I – AA – 4 CREDIT HOURS

This course is designed for students in business and related studies that need calculus but not trigonometry. Included is a review of equations and inequalities and their applications, functions and graphs, exponential and logarithmic functions. Major topics include mathematics of finance limits and continuity, differentiation and integration and applications of these. A graphing calculator is required. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

{MAC 1105 or MAC 1106 or MAC 1140} with a minimum grade of "C," or appropriate CLM score

III. GENERAL COURSE INFORMATION: Topic outline

- Limits
- Differentiation of algebraic, logarithmic, and exponential functions
- Introduction to integration with applications
- Applications to business and the social sciences

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Determine the limit of a function when given its equation, graph, and table of data.	Successful completion of one or more of the following assessment techniques: Written Assignments Presentations Homework Labs Group assignments Projects Quizzes Tests Final examination	TIM
Identify continuous functions, and determine the point(s) of discontinuity for a discontinuous function.		
Apply the definition of a derivative to find the derivative of a function.		
Use an appropriate derivative to find an instantaneous rate of change and interpret the results.		
Create mathematical models for cost, revenue, profit, and price functions.		
Find and interpret the marginal revenue, marginal cost, and marginal profit functions.		
Apply appropriate rules of differentiation to find a derivative.		
Solve problems in mathematics, business, and the social and life sciences using a derivative.		COM
Determine intervals on which a given function increases or decreases.		
Determine critical numbers, and relative and absolute extrema of a given function.		
Apply the First Derivative Test for locating relative extrema.		
Determine the inflection point(s) and the intervals on which the graph of a given function is concave up and/or concave down.		
Apply the Second Derivative Test to determine relative extrema.		
Find and interpret the point of diminishing returns		
Solve optimization problems.		CT

Compute the price elasticity of demand and interpret the results.		
Use limits and derivatives to help determine the graph of a function.		
Apply the formulas for compound interest.		
Determine the derivative of natural exponential and logarithmic functions.		
Find and interpret relative rate of change.		
Use exponential growth and decay to model real life situations.		
Find an antiderivative by applying basic integration rules and techniques.		QR
Find the particular solution that satisfies a given differential equation and initial condition.		
Solve real life problems by using antiderivatives.		
Use the Fundamental Theorem of Calculus to evaluate a definite integral by hand and by using a graphing utility.		
Calculate the area of a bounded region (including the area between two curves, and consumer and producer surplus) by using an integral.		
Find the average value of a function over a closed interval by using an integral.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 2311 – CALCULUS WITH ANALYTIC GEOMETRY I – AA – 4 CREDIT HOURS

This course is designed for students majoring in science, mathematics, or engineering. Topics include: limits, differentiation and integration of algebraic, trigonometric, logarithmic and exponential functions and applications. **This course is sequential with MAC 2312 and MAC 2313. A graphing calculator is required.** If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAC 1140 and MAC 1114 with a minimum grade of "C" in each course, or MAC 1147 with a minimum grade of "C"

III. GENERAL COURSE INFORMATION: Topic outline

- Review of Functions
- Limits and Continuity
- The Derivative
- Differentiation of Algebraic Functions
- Differentiation of Transcendental Functions
- Mean-Value Theorem and Intermediate Value Theorem
- Extrema and Graph Sketching
- Area and the Definite Integral
- Antidifferentiation
- Fundamental Theorem

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:

General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Analyze functions graphically, numerically, and analytically.	HOMEWORK and/or QUIZZES and/or TESTS and/or GROUP ASSIGNMENTS and/or PROJECTS	
Calculate limits and discuss continuity using algebra, limit theorems, graphs and tables of data.		TIM
Calculate the slope of a tangent line and the instantaneous rate of change using the derivative.		
Appropriately apply the derivative to solve problems, including those involving related rates and optimization.		COM
Differentiate algebraic functions expressed in explicit or implicit form using the sum, product, quotient, and/or chain rules as appropriate.		
Differentiate trigonometric, exponential, and logarithmic functions expressed in explicit or implicit form using the sum, product, quotient, and/or chain rules as appropriate.		
Calculate a derivative using the techniques of logarithmic differentiation when appropriate.		
Apply the Mean Value and Intermediate Value Theorems.		
Determine critical numbers and inflection points for a function through calculating and analyzing the first and second derivatives and sketch the graph of the function using this information.		CT
Construct a definite integral to determine an indicated area and calculate the area.		
Determine antiderivatives using basic integration rules		QR

and/or substitution.		
Evaluate definite integrals by using properties of integrals and the Fundamental Theorem of Calculus.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 2312 – CALCULUS WITH ANALYTIC GEOMETRY II – AA – 4 CREDIT HOURS

This course expands upon the topics presented in MAC 2311, including differentiation and integration of other functions, special techniques of integration, and further applications of the definite integral. The course also explores infinite sequences & series. A graphing calculator is required. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAC 2311 with minimum grade of "C"

III. GENERAL COURSE INFORMATION: Topic outline

- Inverse Functions
- Differentiation of Transcendental Functions
- Area and the Definite Integral
- Arc Length
- Techniques of Integration
- Limits
- Taylor's Formula, Infinite Sequences and Series

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology

necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Differentiate and integrate inverse trigonometric, hyperbolic and inverse hyperbolic functions.	HOMEWORK and/or QUIZZES and/or TESTS and/or GROUP ASSIGNMENTS and/or PROJECTS	
Determine the area of a region between two curves by using integral calculus.		TIM
Construct a definite integral to find arc length.		
Select and apply an appropriate method from among disc, washer and shell to determine the volume of a solid of revolution.		CT
Calculate the work done by applying a constant force and work done by applying a variable force.		
Solve separable differential equations.		
Select and apply an appropriate integration technique from among basic integration, *u*-substitution, integration by parts, trigonometric substitution, partial fraction decomposition, and the use of tables.		QR
Evaluate limits of indeterminate forms by applying L'Hopital's Rule.		
Determine the convergence or divergence of an improper integral, and evaluate improper integrals that converge.		
Select and use an appropriate test to determine the convergence or divergence of various types of sequences and series.		COM
Find the exact or approximate sum of various convergent series.		
Determine the radius and interval of convergence of a power series.		
Construct Taylor and Maclaurin polynomials and series.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAC 2313 – CALCULUS WITH ANALYTIC GEOMETRY III – AA – 4 CREDIT HOURS

This course applies the topics presented in MAC 2311 and 2312 to parametric & polar equations, vectors, and functions of several variables. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAC 2312 with minimum grade of "C"

III. GENERAL COURSE INFORMATION: Topic outline

- Arc Length
- Parametric Equations & Polar Coordinates
- Vectors in the Plane & 3-Space
- Topics from Plane & Solid Analytic Geometry
- Directional Derivatives & Curvature
- Differential Calculus of Functions of Several Variables
- Multiple Integration

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Convert between parametric and rectangular equations.	HOMEWORK and/or QUIZZES and/or TESTS and/or GROUP ASSIGNMENTS and/or PROJECTS	
Convert between polar and rectangular forms.		
Graph parametric and polar equations.		
Determine the derivative and integral of equations given in parametric, polar, spherical and cylindrical form.		
Calculate the length of a curve given in parametric form.		TIM
Calculate the area of a region bounded by polar curves.		QR
Complete operations with vectors.		
Apply the dot product to find the angle between vectors and the projection of a vector onto another.		
Calculate the cross product of two vectors and state its significance		
Perform calculus operations on vector-valued functions.		
Find the unit tangent, unit normal, and the curvature of a vector-valued function.		
Find partial derivatives.		
Find and discuss the differences between the gradient and directional derivative of a function.		COM
Use the chain rule for partial derivatives.		
Determine the extrema of a function of several variables.		CT
Compute the point of tangency of lines and surfaces.		
Optimize functions of several variables using LaGrange Multipliers.		CT
Evaluate iterated integrals: double and triple integrals.		
Determine the volume under a curve in 3-space using double integrals.		
Determine the curl and divergence of a vector field.		TIM
Set up and evaluate line integrals.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAP 2302 – DIFFERENTIAL EQUATIONS I – AA – 4 CREDIT HOURS

This course presents methods of solutions for first order equations. Selected applications also covered are higher-order equations, Laplace transforms, and non-linear solutions. A graphing calculator, TI-84, or equivalent, is required. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

MAC 2312 with a grade of "C" or better

III. GENERAL COURSE INFORMATION: Topic outline

- Identification of dependent, independent, linear, and non-linear equations
- Separation of variables
- Substitution techniques
- Exact differential equations
- Integrating factors
- Higher order differential equations
- Undetermined coefficients
- Laplace transforms
- Inverse transforms
- Application of differential equations
- Shifting theorems
- Derivatives and integrals of Laplace transforms

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Classify differential equations by order and linearity.	Quizzes and/or Homework and/or Tests and/or Project and/or Group Assignments	
Analyze differential equations using separation of variables.		
Solve exact differential equations.		
Solve differential equations using integrating factors.		
Compare and solve higher order differential equations using reduction or order, one or more methods for working with undetermined coefficients, variation of parameters.		QR
Evaluate and model applications involving population, circuits, predator-prey, and boundary-value problems.		COM
Design Laplace transforms and inverse Laplace transforms to solve appropriate differential equations.		CT
Evaluate Laplace transforms and inverse Laplace transforms and solve differential equations using the shifting theorems.		
Construct and graph the unit step function.		TIM
Evaluate the derivatives and integrals of Laplace transforms.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MAT 1033 – INTERMEDIATE ALGEBRA – AA – 4 CREDIT HOURS

This course is intended to prepare students for college level algebra courses needed to meet the state requirements for math competencies. This course should adequately prepare the student for MAC 1105 and provide a strong algebra foundation for higher level math. A graphing calculator is required for this course.

II. PREREQUISITES FOR THE COURSE:

Testing or {MAT 9020 or MAT 9024} with a minimum grade of "C"

III. GENERAL COURSE INFORMATION: Topic outline

- Factoring
- Algebraic fractions
- Radicals and rational exponents
- Complex numbers
- Quadratic equations
- Rational equations
- Linear equations and inequalities in two variables and their graphs
- Systems of linear equations and inequalities
- Introduction to functions
- Applications of the above topics

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Factor polynomials using various methods (e.g., greatest common factor, grouping, trial-and-error or the AC method, and difference of squares).	Students will demonstrate competency via one or more of the following assessment techniques: Homework Labs Group assignments Projects Quizzes Tests Final examination.	
Simplify complex rational expressions (i.e. algebraic fractions) and radical expressions (including rationalizing the denominator).		
Demonstrate the rules for integer and rational exponents.		
Evaluate the roots of real numbers both algebraically and by using a calculator.		
Perform operations with and simplify polynomial, rational, and radical expressions.		
Identify elements of and distinguish among subsets of the complex numbers and apply properties (i.e., commutative, associative, distributive, identity, and inverse properties) and apply the proper order of operations.		
Select and apply an appropriate technique for solving quadratic equations utilizing factoring, completing the square, quadratic formula or square root property.		QR
Solve rational and radical equations.		
Solve linear equations and inequalities in one and two variables.		
Graph relations, linear equations and linear inequalities in two variables in the coordinate plane.		
Solve a formula for a given variable including writing the equation of a line in slope-intercept form.		
Use various techniques and concepts to determine the slope of a line.		
Interpret slope as a rate-of-change using effective communication skills.		COM
Solve systems of linear equations and inequalities in two variables and use systems of linear equations to solve application problems.		

State the domain and range of a given relation using appropriate set notation and identify relations that are functions.		
Evaluate functions for specified domain values by referring either to the graph, the equation, or the set of ordered pairs that represents the function.		
Develop a linear model as a solution to an application problem.		CT
Choose, evaluate and/or solve an appropriate formula in an application problem.		TIM

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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Collier Campus	Admin. Bldg. A-116	(239) 732-3918
Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MGF 1106 – MATHEMATICS FOR LIBERAL ARTS I – AA – 3 CREDIT HOURS

This course is intended to introduce the beauty and utility of mathematics to the general student population. Topics include systematic counting, probability, statistics, geometry, sets, and logic. This course is designed for those students whose majors do not require the technical mathematics sequence. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement. The geometry component of this course should meet the requirements of 6a-5.066(3)1, Florida Administrative Rules, for education majors. It will enable the teacher to support the instruction of geometry and measurement as listed by the Sunshine State Standards.

II. PREREQUISITES FOR THE COURSE:

{MAT 1033 or higher} with minimum grade of "C" or Testing

III. GENERAL COURSE INFORMATION: Topic outline

- Counting Principles
- Probability
- Statistics
- Geometry
- Sets
- Logic

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Represent sets using three different methods.	Homework and/or quizzes and/or tests	
Distinguish between equal and equivalent sets.		
Create and interpret a Venn diagram.	Homework and/or quizzes and/or tests and/or projects	TIM
Perform operations with sets.	Homework and/or quizzes and/or tests	
Apply the formula for the cardinality of the union of two sets.		
Express simple and compound statements and their negations using symbolic logic.		
Construct truth tables by using the definitions of negation, conjunction, and disjunction.	Homework and/or quizzes and/or tests	
Determine the truth value of a conditional statement.	Homework and/or quizzes and/or tests and/or projects	CT
Prove that statements are equivalent or not equivalent by using a truth table.		
Examine the validity of an argument by using a truth table or an Euler diagram.		
Solve problems involving angles formed by parallel lines and transversals.		
Solve problems involving similar figures and by using the Pythagorean Theorem.		
Convert units of measurement by using dimensional analysis.		
Distinguish among quadrilaterals and other polygons by their unique characteristics.		

Compute the areas of plane regions and volumes of three-dimensional figures by using formulas.		
Solve application problems involving area and volume.	Homework and/or quizzes and/or tests and/or group assignments and/or projects	
Identify missing parts of right triangles and solve application problems through the use of trigonometric ratios.	Homework and/or quizzes and/or tests and/or projects	
Determine the number of possible outcomes in a given situation by using the Fundamental Counting Principle.		
Calculate permutations and combinations by using their formulas.		
Solve application problems involving the Fundamental Counting Principle, permutations, and combinations.		QR
Compute theoretical and empirical probabilities including the probability of an event not occurring and conditional probabilities.		
Express and interpret the odds in favor and against an event occurring.		
Calculate and interpret expected value.		COM
Organize and present statistical data.		
Identify or calculate the mean, median, mode and midrange for a data set.	Homework and/or quizzes and/or tests and/or group assignments and/or projects	
Calculate and interpret the range and standard deviation for a data set.	Homework and/or quizzes and/or tests and/or group assignments	
Construct and analyze a normal distribution for a given mean and standard deviation.		
Calculate and interpret percentiles and Z-scores.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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Collier Campus	Admin. Bldg. A-116	(239) 732-3918
Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MGF 1107 – MATHEMATICS FOR LIBERAL ARTS II – AA – 3 CREDIT HOURS

This course is intended to present topics which demonstrate the beauty and utility of mathematics to the general student population. Topics include management science, linear and exponential growth, numbers and number systems, history of mathematics, elementary number theory, voting techniques and graph theory. This course is designed for those students whose majors do not require the technical mathematics sequence. If completed with a grade of "C" or better, this course serves to demonstrate competence for the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

{MAT 1033 or higher} with minimum grade of "C" or Testing

III. GENERAL COURSE INFORMATION: Topic outline

- Management science
- Linear and Exponential Growth
- Numbers and Number Systems
- History of Mathematics
- Elementary Number Theory
- Voting Techniques
- Graph Theory

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Change numerals and perform basic arithmetic operations in bases other than ten.	Homework and/or quizzes and/or tests and/or projects	TIM
Translate between Hindu-Arabic and Roman and other numeration systems.		
Write the prime factorization of a composite number.	Homework and/or quizzes and/or tests	
Determine the greatest common divisor of two numbers.		
Perform operations with integers and square roots using the order of operations.		
Transform rational numbers and fractions from ratio form to decimal form and solve application problems involving rational numbers, percents, proportions, and direct/inverse variation.		COM
Define and identify irrational numbers.		
Recognize subsets and properties of the real numbers.	Homework and/or quizzes and/or tests and/or projects	
Construct and evaluate a model for arithmetic and a geometric sequence.		
Evaluate and construct models of linear and exponential growth.		
Express decimals and fractions as percents.	Homework and/or quizzes and/or tests	
Calculate simple interest, compound interest, present value and effective yield.		CT

Determine the amount financed, installment price, finance charge, payoff amount and interest charged on fixed loans and credit card purchases.	Homework and/or quizzes and/or tests and/or projects	
Identify mortgage options and expenses.		
Calculate disbursements of a mortgage payment to principal and interest by constructing an amortization table.		
Distinguish among and utilize various voting methods to determine an election's winner.		GSR
Distinguish among and utilize various methods for solving the apportionment problem.		
Discuss potential flaws with the various voting and apportionment methods.		
Create models to represent various relationships through the use of graph theory paths, circuits, trees and graphs.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES
Edison State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus.

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

MTB 1308 – TI GRAPHING CALCULATORS – AA – 1 CREDIT HOUR

This is an introductory course in using the Texas Instrument graphing calculators currently approved by the mathematics department. No previous knowledge of the calculator is expected or required. This course is especially appropriate for those who wish to take advantage of the advanced features of the TI Series calculators. This course may be offered as a workshop or in a distance learning format.

II. PREREQUISITES FOR THE COURSE: None

III. GENERAL COURSE INFORMATION: Topic outline

- Perform basic calculations on the calculator.
- Use Catalog menu and programming features on the calculator.
- Perform graphing operations on the calculator.
- Perform statistical operations using the calculator.
- Perform linear regression on two-variable data on the calculator.

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Perform basic function of the calculator including screen contrast, entering/editing expressions, and storing and recalling values.	Demonstrate competency via one or more of the following assessment techniques: Homework Lab Test Classroom Demonstration Quiz	
Perform basic arithmetic operations and evaluate algebraic functions on the calculator including expressions with fractions, radicals, exponents, and scientific notation.		
Access the catalog for built-in functions.		
Create and edit a program on the calculator.		TIM
Utilize the graphing features of the calculator to graph functions and equations, set the window, zoom, trace, and find intersection points or zeroes.		
Use the graphing calculator to solve linear equations and inequalities, and systems of linear equations and inequalities.		
Use the graphing calculator to perform statistical operations on one-variable data: frequency distribution, histogram, mean, standard deviation, median, maximum, minimum, quartiles, and sort.		QR
Use the graphing calculator to perform linear regression on two-variable data.		CT
Demonstrate the use of the calculator manual to determine appropriate keystrokes.		COM

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES
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disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus.

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Academic Success Programs

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

SLS 1533 – IMPROVING MATHEMATICS SKILLS BY REDUCING ANXIETY – AA – 1 CREDIT HOUR

This course is designed to assist students in confronting, understanding, and overcoming their mathematics anxieties by improving study skills unique to learning mathematics through the use of relevant mathematical applications and concrete mathematics manipulatives.

II. PREREQUISITES FOR THE COURSE:

None

III. GENERAL COURSE INFORMATION: Topic outline

- Distinguishing between mathematics and other subjects
- Developing a positive learning attitude
- Improving study habits
- Improving problem solving strategies
- Responsibilities of the student in class

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Compare and contrast mathematics and other subjects.	Students will demonstrate competency via one or more of the following assessment techniques: Homework Group activities Journal entries Portfolio components Quizzes Tests Final examination	CT
Identify the similarities and differences among high school, college and university mathematics courses.		
Discuss activities that should be high priority during the first two weeks of a mathematics course.		
Discuss how and if their attitude toward mathematics has changed.		COM
Identify methods of study that increase the potential for learning mathematics including memorization techniques.		TIM
Describe personal learning styles and how that should affect study habits.		COM
Discuss effective personal in-class activities to maximize learning including listening and note-taking skills .		
Identify appropriate times for the use of a calculator or other types of technology.		
Discuss characteristics unique to a mathematics textbook.		
Identify and describe possible techniques to enhance learning outside of the classroom and their benefits including homework, study groups, ideal study environments, and other resources.		
Define and illustrate good number sense.		QR
Recognize and demonstrate techniques to reduce test anxiety.		
Describe effective test preparation and test taking techniques for interim tests as well as final exams.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

STA 2023 – STATISTICAL METHODS I – AA – 4 CREDIT HOURS

This is an introductory course covering the fundamental topics of statistics. Topics include: descriptive measures, probability, probability distributions, central limit theorem, sampling distributions, confidence intervals, hypothesis testing, correlation, regression analysis and non-parametric test procedures. A graphing calculator is required. If completed with a grade of "C" or better, this course serves to demonstrate competence in the general education mathematics requirement.

II. PREREQUISITES FOR THE COURSE:

{MAT 1033 or higher} with a minimum grade of "C" or Testing

III. GENERAL COURSE INFORMATION: Topic outline

- Probability
- Random variables
- Hypothesis testing
- Confidence interval estimation
- Small sample methods
- Correlation
- Simple linear regression
- Nonparametric statistics

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Define and use the basic terminology of statistics.	Homework and/or Tests and/or Group Assignments	
Organize and display data by means of various tables, charts and graphs.		
Compare different sets of data using graphs, charts, tables or numerical measures.		
Calculate and interpret the various descriptive measures for centrality, dispersion and relative standing.		
Distinguish between different types of distributions.		
Apply basic rules of probability.		
Apply the binomial probability distribution.		QR
Use the empirical rule to find probabilities on a bell-shaped distribution.		
Determine probabilities using the normal distribution curve.		
Apply the central limit theorem.		
Estimate means and/or proportions using confidence intervals for one and/or two populations.		CT
Conduct hypothesis tests on means and/or proportions for one and/or two populations.		COM
Determine and interpret p-values.		
Calculate and interpret the linear correlation coefficient.		TIM
Determine the simple linear regression model and use it to predict values.		TIM
Analyze real-world data published in research journals or		

found on the internet.		
Apply non-parametric statistical tests.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	Change to course number
☐	Change to course title
☒	Change to course description
☐	Change to course co-requisites
☒	Change to course prerequisites
☒	Change to course learning outcomes**
☐	Change to course transfer designation
☐	Change to course credits
☒	Other (specify) The topic outline has been rewritten to provide flexibility in covering Thermodynamics. This topic can be covered in either semester (first or second) of the sequence; as such, an instructor has some flexibility both in lecture and lab (depending on the availability of lab equipment and depth of coverage necessary).

Course Name, including prefix and number: **PHY 2048: General Physics I**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

MAC 2311/MAC 2312 (MAC 2312 may be taken concurrently)

to

MAC 2311 with a minimum grade of "C"

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a simplification, in the sense that a student does not need to be in MAC 2312 in order to take PHY 2048. MAC 2312 is not necessary in order to succeed in the class.**
2) **The course description is changed from**
   "This is the first course of a two-semester traditional calculus-based physics sequence. Topics covered include mechanics and the properties of matter."
   to
   "This calculus-based physics course is the first part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ **DATE:** _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2048 – GENERAL PHYSICS I – AA – 4 CREDIT HOURS

This calculus-based physics course is the first part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics.

II. PREREQUISITES FOR THE COURSE:

MAC 2311 with a minimum grade of "C"

Co-requisite: PHY 2048L

III. GENERAL COURSE INFORMATION: Topic outline

- Systems of measurement, and dimensional analysis
- Motion in one, two, and three dimensions
- Newton's Laws and their applications
- Work, energy, and conservation of energy
- Systems of particles, collisions, center of mass, and conservation of linear momentum
- Rotational motion and centripetal acceleration
- Conservation of angular momentum
- Gravity
- Static and rotational equilibrium, and elasticity
- Fluids, Archimedes' principle, and Bernoulli's equation
- Oscillations and waves
- Temperature and the kinetic theory of gases
- Heat and thermodynamics
- Thermal properties and processes

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:

General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Describe the principle of dimensional analysis and use it to derive approximate expressions of physical laws.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	CT, QR
Describe the SI system of units and the differences between base and derived units.		
Interpret the laws of motion and apply them to solve problems in one and two dimensions.		
Describe the concepts of work, power, energy, and conservation of energy; examine the applications of these concepts, and use them to interpret and explain natural phenomena.		CT, QR
Describe the concept of center of mass and use it to analyze the motion of a system of particles.		
Describe the concept of conservation of momentum, examine its applications, and use it to interpret and explain natural phenomena.		COM, CT, QR
Use the concepts of momentum and energy to explain collisions.		
Describe the concept of circular motion and use it to solve problems.		

Use the laws of rotational kinematics to compare linear motion with rotational motion.		
Describe the law of gravitation and use it to explain natural phenomena; combine this law with the laws of motion to explain planetary orbits.		
Identify the conditions for static and rotational equilibrium and use the concept of torque to explain natural phenomena.		
Describe the concepts related to fluid pressure and buoyancy and use Bernoulli's equation to explain natural phenomena.		
Describe the properties of oscillations, waves and the Doppler effect; use these concepts to explain natural phenomena.		CT, TIM, QR
Use the kinetic theory of gases to distinguish between "heat" and "temperature"; interpret and apply the concept of energy per degree of freedom.		
Interpret and apply the laws of thermodynamics to explain natural phenomena.		
Recognize thermal properties and processes and use them to explain and interpret thermal phenomena.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

Edison State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus.

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☒	**Change to course description**
☐	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The topic outline has been rewritten to provide flexibility in covering Thermodynamics, which can now be covered in either semester (first or second of the sequence), and in choosing among compatible lab exercises (depending on the availability of lab equipment).**

Course Name, including prefix and number: **PHY 2048L: General Physics I Laboratory**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

MAC 2311/MAC 2312 (MAC 2312 may be taken concurrently)

to

MAC 2311 with a minimum grade of "C"

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a simplification, in the sense that a student does not need to be in MAC 2312 in order to take PHY 2048L. MAC 2312 is not necessary in order to succeed in the class.**
2) **The course description is changed from**
   "This course is a companion to PHY 2048 and includes comprehensive experiments, data collection and interpretation to illustrate concepts and principles related to force and motion, work and energy, rotation, gravity and properties of matter."
   to
   "This laboratory course accompanies PHY 2048 and is the first part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____ Date_____

Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:

_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ DATE: _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ DATE: _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ DATE: _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2048L – GENERAL PHYSICS I LABORATORY – AA – 1 CREDIT HOUR

This laboratory course accompanies PHY 2048 and is the first part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report.

II. PREREQUISITES FOR THE COURSE:

MAC 2311 with a minimum grade of "C"

Co-requisite: PHY 2048

III. GENERAL COURSE INFORMATION: Topic outline

The following experiments provide a foundation for covering all the main concepts in the lecture component of this course.

- Experimental uncertainty (errors) and data analysis
- Measuring density
- Acceleration of gravity
- Addition and resolution of forces
- Atwood machine
- Friction
- Centripetal force
- Work and energy
- Projectile motion: the Ballistic Pendulum
- Torques, equilibrium, and center of gravity
- Simple harmonic motion

- Simple pendulum
- Archimedes' principle
- Standing waves
- Air column resonance
- Thermal coefficient of linear expansion
- Specific heat of metals
- Latent heats of fusion and vaporization

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Recognize the effects of errors in measurements and illustrate their impact on the experimental data and results.	Lab reports, exams and/or projects.	COM, CT, TIM, QR
Use appropriate measuring devices in distinguishing between measurements of mass and density, and experimentally determine the density of a given object.		COM, CT, TIM, QR
Investigate the laws of motion and experimentally determine the acceleration of gravity and of a given object in linear and circular motion.		COM, CT, TIM, QR

Apply and distinguish between graphical and analytical methods in calculating physical quantities.		COM, CT, TIM, QR
Evaluate the validity of empirical "laws" as they relate to the experimental determination of the coefficient of friction between two given surfaces and Hooke's law in simple harmonic motion.		COM, CT, TIM, QR
Explain the relationship between work and energy and compare and contrast conservation laws for ideal systems with the non-conservative aspects of situations under laboratory conditions.		COM, CT, TIM, QR
Investigate and distinguish between the concepts of "center of mass" and "center of gravity" while experimenting with the static equilibrium of an object under the influence of forces and torques.		COM, CT, TIM, QR
Distinguish between the quantities "density" and "specific gravity"; apply Archimedes' principle in determining these quantities for solid and liquid samples.		COM, CT, TIM, QR
Distinguish between the concepts of "node," "antinode," and "resonance" in your investigation of waves and experimentally calculate the speed of a wave.		COM, CT, TIM, QR
Investigate and identify thermal properties and processes, and determine experimentally the values of certain heat constants for various metals and liquids.		COM, CT, TIM, QR

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☒	**Change to course description**
☐	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The topic outline has been rewritten to provide flexibility in covering Thermodynamics. This topic can be covered in either semester (first or second) of the sequence; as such, an instructor has some flexibility both in lecture and lab (depending on the availability of lab equipment and depth of coverage necessary).**

Course Name, including prefix and number: **PHY 2049: General Physics II**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

PHY 2048

to

PHY 2048 and PHY 2048L with a minimum grade of "C" in each course

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification. PHY 2048L is a co-requisite of PHY 2048, and as such both PHY 2048 and PHY 2048L must be successfully completed before a student enrolls in PHY 2049/PHY 2049L.**
2) **The course description is changed from**
   "This is the second course in a two-semester traditional calculus-based physics sequence. Topics covered include oscillations and waves, sound, thermodynamics, electricity and magnetism."
   to
   "This calculus-based physics course is the second part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ **DATE:** _____

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Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2049 – GENERAL PHYSICS II – AA – 4 CREDIT HOURS

This calculus-based physics course is the second part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics.

II. PREREQUISITES FOR THE COURSE:

PHY 2048 and PHY 2048L with a minimum grade of "C" in each course

Co-requisite: PHY 2049L

III. GENERAL COURSE INFORMATION: Topic outline

- Temperature and the kinetic theory of gases
- Heat and thermodynamics
- Thermal properties and processes
- Electric field of discrete and continuous charge distributions
- Electric potential
- Electrostatic energy and capacitance
- Electric current and direct-current circuits
- The magnetic field and sources of the magnetic field
- Magnetic induction
- Alternating-current circuits
- Maxwell's equations and electromagnetic waves
- Properties of light, optical images, interference and diffraction
- Aspects of modern physics

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Use the kinetic theory of gases to distinguish between "heat" and "temperature"; interpret and apply the concept of energy per degree of freedom.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	
Interpret and apply the laws of thermodynamics to explain natural phenomena.		
Recognize thermal properties and processes and use them to explain and interpret thermal phenomena.		
Recognize the quantum nature of electric charge.		
Explain the interaction between electric charges and use Coulomb's law to solve problems involving charge distributions.		TIM, QR
Explain the concept of "field" and compare it to "action-at-a-distance" using forces.		
Explain and draw the electric field configuration due to various discrete and continuous charge distributions.		
Relate the theoretical interpretation of electric potential to everyday phenomena and use it to solve problems.		
Explain the meaning of electrostatic energy and apply it to solve problems involving capacitance.		
Identify the theoretical framework for electric		

current and apply it to solving problems on direct current circuits and alternating current circuits.		
Explain and draw the magnetic field configuration due to various current distributions.		
Explain the concept of electromagnetic induction and use it to explain everyday physical phenomena.		COM, CT
Describe and use Maxwell's equations to solve problems in electricity and magnetism.		
Investigate the interaction of light with matter and light's properties.		
Compare and contrast the (special) relativistic view with the Newtonian view of nature.		COM, CT
Compare and contrast the quantum mechanical view with the Newtonian view of nature.		COM, CT

V. DISTRICT-WIDE POLICIES:

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☒	**Change to course description**
☐	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The topic outline has been rewritten to provide flexibility in covering Thermodynamics, which can now be covered in either semester (first or second of the sequence), and in choosing among compatible lab exercises (depending on the availability of lab equipment).**

Course Name, including prefix and number: **PHY 2049L: General Physics II Laboratory**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

PHY 2048

to

PHY 2048 and PHY 2048L with a minimum grade of "C" in each course

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification. PHY 2048L is a co-requisite of PHY 2048, and as such both PHY 2048 and PHY 2048L must be successfully completed before a student enrolls in PHY 2049/PHY 2049L.**
2) **The course description is changed from**
   "This course is a companion to PHY 2049 and includes comprehensive experiments, data collection and interpretation to illustrate concepts and principles related to oscillations and waves, sound, thermodynamics, electricity and magnetism. Principles of optics are demonstrated though the use of mirrors, prisms and lenses."
   to
   "This laboratory course accompanies PHY 2049 and is the second part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____ Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ DATE: _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ DATE: _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ DATE: _____

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The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2049L – GENERAL PHYSICS II LABORATORY – AA – 1 CREDIT HOUR

This laboratory course accompanies PHY 2049 and is the second part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report.

II. PREREQUISITES FOR THE COURSE:

PHY 2048 and PHY 2048L with a minimum grade of "C" in each course

Co-requisite: PHY 2049

III. GENERAL COURSE INFORMATION: Topic outline

The following experiments provide a foundation for covering all the main concepts in the lecture component of this course.

- Thermal coefficient of linear expansion
- Specific heat of metals
- Latent heats of fusion and vaporization
- Fields and equipotentials
- Ohm's law
- Resistances in series and parallel; the Wheatstone bridge
- Joule heat
- The temperature dependence of resistance
- The RC time constant
- Earth's magnetic field

- Electromagnetic induction
- AC circuits
- Introduction to the oscilloscope
- Geometric optics: reflection, and refraction
- Spherical mirrors and lenses
- The prism spectrometer: dispersion and the index of refraction
- Polarization of light
- Detection of nuclear radiation

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

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Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Investigate and identify thermal properties and processes, and determine experimentally the values of certain heat constants for various metals and liquids.	Lab reports, exams and/or projects.	COM, CT, TIM, QR
Draw and interpret the electric field due to a configuration of charges, and use the results to identify the equipotential lines.		COM, CT, TIM, QR

Investigate and verify the approximate nature of Ohm's "law" and apply it to calculate the equivalent resistance of resistors in series and in parallel.		COM, CT, TIM, QR
Investigate the concept of joule heat, explain the factors it depends on, and experimentally measure the electrical equivalent of heat.		COM, CT, TIM, QR
Recognize and investigate the relationship between temperature and electrical resistance, and between electric potential and electric current; interpret and evaluate the nature of these relationships.		COM, CT, TIM, QR
Investigate direct current circuits containing capacitors and resistors, determine the RC time constant, and explain what its value means in terms of circuit characteristics.		COM, CT, TIM, QR
Draw and interpret the magnetic field of a bar magnet and use its interaction with Earth's magnetic field to estimate the latter's strength.		COM, CT, TIM, QR
Explore the nature of a changing magnetic field, and relate electromagnetic induction to everyday phenomena.		COM, CT, TIM, QR
Investigate alternating current (RLC) circuits using an oscilloscope, compare predicted values of the voltages and impedance of a circuit with their measured values, and draw appropriate phasor diagrams.		COM, CT, TIM, QR
Investigate the behavior of light as it propagates through a medium, explain the "laws" of reflection and refraction and how images form, and measure experimentally the index of refraction of a glass plate.		COM, CT, TIM, QR
Investigate the behavior of light as it travels through filters and dispersive media and explain the resulting polarization and dispersion.		COM, CT, TIM, QR
Investigate the principles of nuclear radiation, explain how a Geiger counter works, and experimentally test the inverse square law for nuclear radiation.		COM, CT, TIM, QR

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☒	**Change to course description**
☐	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The topic outline has been rewritten to provide flexibility in covering Thermodynamics. This topic can be covered in either semester (first or second) of the sequence; as such, an instructor has some flexibility both in lecture and lab (depending on the availability of lab equipment and depth of coverage necessary).**

Course Name, including prefix and number: **PHY 2053: College Physics I**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

MAC 1140 and MAC 1114 or MAC 1147

to

A grade of "C" or better in {MAC 1140 and MAC 1114} or MAC 1147

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification, in the sense that a student must successfully complete the prerequisite math course(s).**
2) **The course description is changed from**
   "This is the first course of a two-semester non-calculus introduction to physics sequence primarily for pre-professional and technical students. Topics covered include mechanics and the properties of matter."
   to
   "This physics course, based on algebra and trigonometry, is the first part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ **DATE:** _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PREOFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2053 – COLLEGE PHYSICS I – AA – 4 CREDIT HOURS

This physics course, based on algebra and trigonometry, is the first part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics.

II. PREREQUISITES FOR THE COURSE:

A grade of "C" or better in {MAC 1140 and MAC 1114} or MAC 1147

Co-requisite: PHY 2053L

III. GENERAL COURSE INFORMATION: Topic outline

- Systems of measurement, and dimensional analysis
- Motion in one, two, and three dimensions
- Newton's Laws and their applications
- Work, energy, and conservation of energy
- Systems of particles, collisions, center of mass, and conservation of linear momentum
- Rotational motion and centripetal acceleration
- Conservation of angular momentum
- Gravity
- Static and rotational equilibrium, and elasticity
- Fluids, Archimedes' principle, and Bernoulli's equation
- Oscillations and waves
- Temperature and the kinetic theory of gases
- Heat and thermodynamics
- Thermal properties and processes

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Describe the principle of dimensional analysis and use it to derive approximate expressions of physical laws.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	CT, QR
Describe the SI system of units and the differences between base and derived units.		
Interpret the laws of motion and apply them to solve problems in one and two dimensions.		
Describe the concepts of work, power, energy, and conservation of energy; examine the applications of these concepts, and use them to interpret and explain natural phenomena.		CT, QR
Describe the concept of center of mass and use it to analyze the motion of a system of particles.		
Describe the concept of conservation of momentum, examine its applications, and use it to interpret and explain natural phenomena.		COM, CT, QR
Use the concepts of momentum and energy to explain collisions.		

Describe the concept of circular motion and use it to solve problems.		
Use the laws of rotational kinematics to compare linear motion with rotational motion.		
Describe the law of gravitation and use it to explain natural phenomena; combine this law with the laws of motion to explain planetary orbits.		
Identify the conditions for static and rotational equilibrium and use the concept of torque to explain natural phenomena.		
Describe the concepts related to fluid pressure and buoyancy and use Bernoulli's equation to explain natural phenomena.		
Describe the properties of oscillations, waves and the Doppler effect; use these concepts to explain natural phenomena.		CT, TIM, QR
Use the kinetic theory of gases to distinguish between "heat" and "temperature"; interpret and apply the concept of energy per degree of freedom.		
Interpret and apply the laws of thermodynamics to explain natural phenomena.		
Recognize thermal properties and processes and use them to explain and interpret thermal phenomena.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

Edison State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus.

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☒	**Change to course description**
☐	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The topic outline has been rewritten to provide flexibility in covering Thermodynamics, which can now be covered in either semester (first or second of the sequence), and in choosing among compatible lab exercises (depending on the availability of lab equipment).**

Course Name, including prefix and number: **PHY 2053L: College Physics I Laboratory**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

MAC 1140 and MAC 1114 or MAC 1147

to

A grade of "C" or better in {MAC 1140 and MAC 1114} or MAC 1147

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification, in the sense that a student must successfully complete the prerequisite math course(s).**
2) **The course description is changed from**
   "This course is a companion to PHY 2053 and includes comprehensive experiments, data collection and interpretation to illustrate concepts and principles related to force and motion, work and energy, rotation, gravity and properties of matter."
   to
   "This laboratory course accompanies PHY 2053 and is the first part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____ Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ DATE: _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ DATE: _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2053L – COLLEGE PHYSICS I LABORATORY – AA – 1 CREDIT HOUR

This laboratory course accompanies PHY 2053 and is the first part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report.

II. PREREQUISITES FOR THE COURSE:

A grade of "C" or better in {MAC 1140 and MAC 1114} or MAC 1147

Co-requisite: PHY 2053

III. GENERAL COURSE INFORMATION: Topic outline

The following experiments provide a foundation for covering all the main concepts in the lecture component of this course.

- Experimental uncertainty (errors) and data analysis
- Measuring density
- Acceleration of gravity
- Addition and resolution of forces
- Atwood machine
- Friction
- Centripetal force
- Work and energy
- Projectile motion: the Ballistic Pendulum
- Torques, equilibrium, and center of gravity
- Simple harmonic motion

- Simple pendulum
- Archimedes' principle
- Standing waves
- Air column resonance
- Thermal coefficient of linear expansion
- Specific heat of metals
- Latent heats of fusion and vaporization

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Recognize the effects of errors in measurements and illustrate their impact on the experimental data and results.	Lab reports, exams and/or projects.	COM, CT, TIM, QR
Use appropriate measuring devices in distinguishing between measurements of mass and density, and experimentally determine the density of a given object.		COM, CT, TIM, QR
Investigate the laws of motion and experimentally determine the acceleration of gravity and of a given object in linear and circular motion.		COM, CT, TIM, QR

Apply and distinguish between graphical and analytical methods in calculating physical quantities.		COM, CT, TIM, QR
Evaluate the validity of empirical "laws" as they relate to the experimental determination of the coefficient of friction between two given surfaces and Hooke's law in simple harmonic motion.		COM, CT, TIM, QR
Explain the relationship between work and energy and compare and contrast conservation laws for ideal systems with the non-conservative aspects of situations under laboratory conditions.		COM, CT, TIM, QR
Investigate and distinguish between the concepts of "center of mass" and "center of gravity" while experimenting with the static equilibrium of an object under the influence of forces and torques.		COM, CT, TIM, QR
Distinguish between the quantities "density" and "specific gravity"; apply Archimedes' principle in determining these quantities for solid and liquid samples.		COM, CT, TIM, QR
Distinguish between the concepts of "node," "antinode," and "resonance" in your investigation of waves and experimentally calculate the speed of a wave.		COM, CT, TIM, QR
Investigate and identify thermal properties and processes, and determine experimentally the values of certain heat constants for various metals and liquids.		COM, CT, TIM, QR

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☒	**Change to course description**
☐	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The topic outline has been rewritten to provide flexibility in covering Thermodynamics. This topic can be covered in either semester (first or second) of the sequence; as such, an instructor has some flexibility both in lecture and lab (depending on the availability of lab equipment and depth of coverage necessary).**

Course Name, including prefix and number: **PHY 2054: College Physics II**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

PHY 2053

to

PHY 2053 and PHY 2053L with a minimum grade of "C" in each course

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification. PHY 2053L is a co-requisite of PHY 2053, and as such both PHY 2053 and PHY 2053L must be successfully completed before a student enrolls in PHY 2054/PHY 2054L.**
2) **The course description is changed from**
   "This is the second course of a two-semester non-calculus introduction to physics sequence primarily for pre-professional and technical students. Topics covered include oscillations and waves, sound, thermodynamics, electricity and magnetism."
   to
   "This physics course, based on algebra and trigonometry, is the second part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

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_____ Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ **DATE:** _____

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Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2054 – COLLEGE PHYSICS II – AA – 4 CREDIT HOURS

This physics course, based on algebra and trigonometry, is the second part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics and modern physics.

II. PREREQUISITES FOR THE COURSE:

PHY 2053 and PHY 2053L with a minimum grade of "C" in each course

Co-requisite: PHY 2054L

III. GENERAL COURSE INFORMATION: Topic outline

- Temperature and the kinetic theory of gases
- Heat and thermodynamics
- Thermal properties and processes
- Electric field of discrete and continuous charge distributions
- Electric potential
- Electrostatic energy and capacitance
- Electric current and direct-current circuits
- The magnetic field and sources of the magnetic field
- Magnetic induction
- Alternating-current circuits
- Maxwell's equations and electromagnetic waves
- Properties of light, optical images, interference and diffraction
- Aspects of modern physics

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other

courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Use the kinetic theory of gases to distinguish between "heat" and "temperature"; interpret and apply the concept of energy per degree of freedom.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	
Interpret and apply the laws of thermodynamics to explain natural phenomena.		
Recognize thermal properties and processes and use them to explain and interpret thermal phenomena.		
Recognize the quantum nature of electric charge.		
Explain the interaction between electric charges and use Coulomb's law to solve problems involving charge distributions.		TIM, QR
Explain the concept of "field" and compare it to "action-at-a-distance" using forces.		
Explain and draw the electric field configuration due to various discrete and continuous charge distributions.		
Relate the theoretical interpretation of electric potential to everyday phenomena and use it to solve problems.		
Explain the meaning of electrostatic energy and apply it to solve problems involving capacitance.		
Identify the theoretical framework for electric current		

and apply it to solving problems on direct current circuits and alternating current circuits.		
Explain and draw the magnetic field configuration due to various current distributions.		
Explain the concept of electromagnetic induction and use it to explain everyday physical phenomena.		COM, CT
Describe and use Maxwell's equations to solve problems in electricity and magnetism.		
Investigate the interaction of light with matter and light's properties.		
Compare and contrast the (special) relativistic view with the Newtonian view of nature.		COM, CT
Compare and contrast the quantum mechanical view with the Newtonian view of nature.		COM, CT

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

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CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

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☐	**Change to course title**
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☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The topic outline has been rewritten to provide flexibility in covering Thermodynamics, which can now be covered in either semester (first or second of the sequence), and in choosing among compatible lab exercises (depending on the availability of lab equipment).**

Course Name, including prefix and number: **PHY 2054L: College Physics II Laboratory**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from

PHY 2053

to

PHY 2053 and PHY 2053L with a minimum grade of "C" in each course

Change in co-requisite from to

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification. PHY 2053L is a co-requisite of PHY 2053, and as such both PHY 2053 and PHY 2053L must be successfully completed before a student enrolls in PHY 2054/PHY 2054L.**
2) **The course description is changed from**
   "This course is a companion to PHY 2054 and includes comprehensive experiments, data collection and interpretation to illustrate concepts and principles related to oscillations and waves, sound, thermodynamics, electricity and magnetism. Principles of optics are demonstrated though the use of mirrors, prisms and lenses."
   to
   "This laboratory course accompanies PHY 2054 and is the second part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report."
   The new description better describes the content of the entire sequence.
3) **The Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____ Date_____

Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:

_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ DATE: _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ DATE: _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ DATE: _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

PHY 2054L – COLLEGE PHYSICS II LABORATORY – AA – 1 CREDIT HOUR

This laboratory course accompanies PHY 2054 and is the second part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of "learning by doing" and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report.

II. PREREQUISITES FOR THE COURSE:

PHY 2053 and PHY 2053L with a minimum grade of "C" in each course

Co-requisite: PHY 2054

III. GENERAL COURSE INFORMATION: Topic outline

The following experiments provide a foundation for covering all the main concepts in the lecture component of this course.

- Thermal coefficient of linear expansion
- Specific heat of metals
- Latent heats of fusion and vaporization
- Fields and equipotentials
- Ohm's law
- Resistances in series and parallel; the Wheatstone bridge
- Joule heat
- The temperature dependence of resistance
- The RC time constant
- Earth's magnetic field

- Electromagnetic induction
- AC circuits
- Introduction to the oscilloscope
- Geometric optics: reflection, and refraction
- Spherical mirrors and lenses
- The prism spectrometer: dispersion and the index of refraction
- Polarization of light
- Detection of nuclear radiation

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Investigate and identify thermal properties and processes, and determine experimentally the values of certain heat constants for various metals and liquids.	Lab reports, exams and/or projects.	COM, CT, TIM, QR
Draw and interpret the electric field due to a configuration of charges, and use the results to identify the equipotential lines.		COM, CT, TIM, QR

Investigate and verify the approximate nature of Ohm's "law" and apply it to calculate the equivalent resistance of resistors in series and in parallel.		COM, CT, TIM, QR
Investigate the concept of joule heat, explain the factors it depends on, and experimentally measure the electrical equivalent of heat.		COM, CT, TIM, QR
Recognize and investigate the relationship between temperature and electrical resistance, and between electric potential and electric current; interpret and evaluate the nature of these relationships.		COM, CT, TIM, QR
Investigate direct current circuits containing capacitors and resistors, determine the RC time constant, and explain what its value means in terms of circuit characteristics.		COM, CT, TIM, QR
Draw and interpret the magnetic field of a bar magnet and use its interaction with Earth's magnetic field to estimate the latter's strength.		COM, CT, TIM, QR
Explore the nature of a changing magnetic field, and relate electromagnetic induction to everyday phenomena.		COM, CT, TIM, QR
Investigate alternating current (RLC) circuits using an oscilloscope, compare predicted values of the voltages and impedance of a circuit with their measured values, and draw appropriate phasor diagrams.		COM, CT, TIM, QR
Investigate the behavior of light as it propagates through a medium, explain the "laws" of reflection and refraction and how images form, and measure experimentally the index of refraction of a glass plate.		COM, CT, TIM, QR
Investigate the behavior of light as it travels through filters and dispersive media and explain the resulting polarization and dispersion.		COM, CT, TIM, QR
Investigate the principles of nuclear radiation, explain how a Geiger counter works, and experimentally test the inverse square law for nuclear radiation.		COM, CT, TIM, QR

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

Edison State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should

contact the Office of Adaptive Services at the nearest campus.

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☐	**Change to course title**
☒	**Change to course description**
☐	**Change to course co-requisites**
☐	**Change to course prerequisites**
☐	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☐	**Other (specify)**

Course Name, including prefix and number: **BSC 1084C: Anatomy and Physiology**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from to

Change in co-requisite from to

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

The first line of the course's description read as follows: "This is a one semester combined lecture/lab course in human anatomy and physiology designed for students in the paramedic program at Edison State College." We deleted the second half of this sentence; the new description now reads as follows:

> "This is a one semester combined lecture/lab course in human anatomy and physiology. It includes principles and concepts of chemistry and biochemistry. Concepts related to the cell and tissues are covered in conjunction with concepts related to the structure and function of the body systems. Each system is presented in sufficient depth to provide students with a comprehensive understanding of the human body. This course is an introduction to anatomy and physiology, chemistry, the cell, tissues, and the following systems: integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive. This course cannot be used as a substitute for any other anatomy and physiology course at Edison State College."

The change was made to accommodate new degree programs in the health sciences that need this course. Please note that even though this course was originally designed for students in the paramedic program, no major restriction was included in the original proposal. As such, any student can take this course, independent of the statement on the first line of the course description in the current syllabus.

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Summer 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____ Date_____

Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ **DATE:** _____

After reviewing and signing this proposal, the District Dean will return the proposal to the Department Chair or Program Coordinator.

The Department Chair/Program Coordinator will send this proposal along with any other proposals from his/her department being submitted for review by the Curriculum Committee to the Office of the Vice President of Academic and Student Affairs by the Friday before the next scheduled Curriculum Committee meeting.

Fall 2009

EDISON STATE COLLEGE

Division of Arts & Sciences

COMMON COURSE SYLLABUS

PROFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

BSC 1084C – ANATOMY AND PHYSIOLOGY – AA – 4 CREDIT HOURS

This is a one semester combined lecture/lab course in human anatomy and physiology. It includes principles and concepts of chemistry and biochemistry. Concepts related to the cell and tissues are covered in conjunction with concepts related to the structure and function of the body systems. Each system is presented in sufficient depth to provide students with a comprehensive understanding of the human body. This course is an introduction to anatomy and physiology, chemistry, the cell, tissues, and the following systems: integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive. This course cannot be used as a substitute for any other anatomy and physiology course at Edison State College.

II. PREREQUISITES FOR THE COURSE:

Successful completion of all developmental courses and corresponding state exit exams

III. GENERAL COURSE INFORMATION: Topic outline

- Anatomy and physiology
- Chemistry
- Cells
- Tissues
- Integumentary system
- Skeletal system
- Muscular system
- Nervous system
- Special senses
- Endocrine system
- Cardiovascular
- Lymphatic system
- Endocrine system
- Immune system
- Respiratory system
- Digestive system
- Urinary system
- Reproductive system

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:

General education courses must meet at least four of the five following outcomes. All other

courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Define homeostasis, explain homeostatic control mechanisms, and give examples of conditions that are maintained in the human body.	Lecture exam.	CT
Use anatomical terminology correctly.	Successful completion of the appropriate lab exercise and utilization of appropriate terminology throughout the course.	
Describe the functions of ions, water, acids, and bases in the human body.	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	
Discuss the differences in structure and function in these macromolecules: carbohydrates, lipids, proteins, and nucleic acids	Successful completion of the appropriate lab exercise and lecture exam.	
Explain the role of enzymes.		
Identify the major cellular organelles and discuss their function.	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	

Explain how substances move into and out of cells.	Successful completion of the appropriate lab exercise and lecture exam.	
Compare and contrast mitosis and meiosis.	Successful completion of the appropriate lab exercise and lecture exam.	
Compare and contrast the characteristics, classification, location, and function of the four primary tissues and use a microscope correctly to identify tissues.	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	
Describe the structure and summarize the functions of the different parts of the integumentary system.	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	
Discuss the types and significance of burns.		
Differentiate the two ossification processes and summarize the events involved in the remodeling and repair of bones.	Successful completion of the appropriate lab exercise and lecture exam.	CT
Identify the bones and major bone markings on the axial and appendicular skeleton.	Successful completion of the appropriate lab exercise and lab practical exam.	
Describe the structure of various joints, demonstrate the types of movements these joints allow, and describe the factors that determine the stability of joints.	Successful completion of the appropriate lab exercises, lecture exam and lab exam.	
Describe gross anatomy and the microscopic anatomy of skeletal muscle and describe the mechanism of contraction of a skeletal muscle cell.	Lecture exam and lab exam.	
Describe skeletal muscle metabolism, sketch aerobic and anaerobic cellular respiration, and explain the effect of exercise on muscles.	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	COM, TIM
Identify the major muscles of the body on models and demonstrate their actions.	Successful completion of the appropriate lab exercise and a lab practical exam.	
Describe the characteristics, structure, and function of the nervous system cells (including neurons and glial cells), appraise their differences, and summarize how neurons transmit information to other neurons or	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	COM, CT, TIM

skeletal muscles.		
Describe the structure and function of the central nervous system (CNS), analyze how information is processed and conducted throughout the CNS, identify how the CNS is protected, and identify and describe the function of the cranial nerves.		
Describe the components of the peripheral nervous system (PNS) and discuss how they convey sensory information to the CNS and motor output to effector organs; also, identify and describe the function of the spinal nerves.	Successful completion of the appropriate lab exercises, lecture exam and lab exam.	
Construct the components of a reflex arc, discuss the function and importance of spinal reflexes, and demonstrate given reflexes.	Successful completion of the appropriate lab and lecture exam.	
Compare and contrast the somatic and autonomic nervous systems (ANS) and compare and contrast the structure and function of the sympathetic and parasympathetic branches of the ANS.	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	
Describe the structure and function of the special sense organs, and analyze how they convert sensory information into nerve impulses and how the input is integrated.		
Identify the major endocrine organs, describe each of their hormones and the control of their release, and analyze the role of each hormone in homeostasis.		
Analyze the composition, physical characteristics and functions of blood, and explain the process of hemostasis and the associated disorders.	Successful completion of the appropriate lab exercise, lab practical and lecture exam.	
Describe the gross and microscopic anatomy of the heart, diagram the pathway of blood through the heart, and describe the contraction of cardiac muscle cells.	Successful dissection of a preserved heart, identifying the heart structures including coronary vessels on models in a practical exam, and by taking a lecture exam.	COM

Explain how the cardiac conduction system controls cardiac contraction and correlate the events of the cardiac cycle.	Successful completion of a lecture exam and correct interpretation of EKG's.	COM
Calculate cardiac output and describe associated homeostatic imbalances.	Successful completion of a lecture exam.	QR
Describe the structure of blood vessels and outline the factors affecting blood flow, the control of blood flow through the body tissues, and the movement of fluids and nutrients across the capillary wall.		QR
Identify the major blood vessels and circulatory pathways on models.	Successful completion of a lab practical exam.	
Describe the structure and function of lymphoid cells, tissues, vessels and organs and explain the formation of lymph.	Successful completion of a lecture exam and lab exam for the lymphatic system.	
Summarize the first and second line of nonspecific defense mechanisms and compare and contrast antibody mediated and cell mediated immunity.		
Describe the structure and function of the respiratory system organs, the mechanics of breathing, the control of ventilation, and describe the respiratory volumes and capacities.	Successful completion of a lecture exam, a spirometry lab, and a lab practical.	COM, QR
Compare and contrast the structure, function, and control of the digestive system organs.	Successful completion of a lecture exam and a lab practical.	
Describe the structure and function of the urinary system organs, identify urinary system structures on models, and explain how dilute and concentrated urine are formed.		
Summarize water, electrolyte, and acid-base balance and their effect on homeostasis.	Successful completion of a lecture exam.	COM, CT
Describe blood pressure homeostasis by correlating the neuronal and hormonal control mechanisms for cardiac output, peripheral resistance, and blood volumes.		COM, CT

Describe the structure and function of the male and female reproductive organs and identify these organs on models.	Successful completion of a lecture exam and lab practical.	
Diagram spermatogenesis, oogenesis, ovarian cycle, and the uterine cycle and explain the hormonal control of the male and female reproductive systems.		
Describe the events in fertilization, and the progression of fetal development events.		

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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Collier Campus	Admin. Bldg. A-116	(239) 732-3918
Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☒	**Change to course title**
☒	**Change to course description**
☒	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☐	**Other (specify)**

Course Name, including prefix and number: **AST 2003 – Astronomy I: The Solar System**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from **MAT 1033 or higher** to **MAT 1033 or higher with a minimum grade of "C"**

Change in co-requisite from **---** to **AST 2003L**

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification, in the sense that a student must receive a "C" or better in MAT 1033 (or higher level math course).**
2) **The change in co-requisite is made in order to provide a more complete educational experience for the students by combining the lab and lecture components of the course.**
3) **The addition of "The Solar System" in the title makes the content of the course clearer to a casual reader.**
4) **The course description is changed from**
   "This course is part one of a two-semester sequence designed to provide an orientation to the night sky and hands-on use of the astronomer's tools in the study of our solar system. AST 2003 and AST 2004 may be taken in any order. Laboratory is required to satisfy the natural sciences graduation requirement."
   to
   "This course is the first part of a sequence of two courses that provide a survey of astronomy as a quantitative observational science. This course is designed to provide an introduction to the night sky, astronomical tools and methods, the historical development of our understanding of the universe, and the solar system. AST 2003 and AST 2004 may be taken in any order."
   The new description better describes the content of the entire sequence and of this course.
5) **The topic outline and Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ DATE: _____

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Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PREOFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

AST 2003 – ASTRONOMY I: THE SOLAR SYSTEM – AA – 3 CREDIT HOURS

This course is the first part of a sequence of two courses that provide a survey of astronomy as a quantitative observational science. This course is designed to provide an introduction to the night sky, astronomical tools and methods, the historical development of our understanding of the universe, and the solar system. AST 2003 and AST 2004 may be taken in any order.

II. PREREQUISITES FOR THE COURSE:

MAT 1033 or higher with a minimum grade of "C"

Co-requisite: AST 2003L

III. GENERAL COURSE INFORMATION: Topic outline

- Orientation to the night sky and units of measurement
- Lunar and solar eclipses
- The Greek geocentric model
- Kepler, Galileo, Newton and the heliocentric model
- Light and the electromagnetic spectrum
- Gravity
- Telescopes
- The Earth-Moon system
- The formation of planetary systems
- The planets in our solar system and their satellites
- Solar system debris: comets, asteroids, and meteoroids
- The Sun

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other

courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Describe the major celestial phenomena associated with the Sun, Moon, planets, and stars and their relationship to the celestial sphere.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	CT
Describe the ancient concepts of astronomy and show how they relate to modern day concepts.		CT, TIM
Identify the major historical figures through Newton and discuss their laws and theories.		CT, QR
Describe the law of gravitation and use it along with the laws of motion to describe planetary orbits.		CT, QR
Identify the various observational tools used in astronomy and categorize and differentiate the regions of the electromagnetic spectrum.		CT
Describe the theories related to the Moon's origin, its phases and its tidal effects on Earth.		CT
Compare and contrast the major physical characteristics of the Earth and the Moon.		CT, COM
Compare theories of formation of stars and their planetary systems.		CT, COM, TIM
Identify, describe, and compare the interiors, surfaces, atmospheres (where applicable), and physical characteristics of the terrestrial planets.		CT, COM

Compare the structure and physical characteristics of the Jovian planets.		CT, COM
Identify, describe, and compare the various objects comprising the solar system debris.		CT, COM
Identify, describe, and compare the different layers in the Sun's interior and atmosphere.		CT, COM

V. DISTRICT-WIDE POLICIES:

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Hendry/Glades Ctr.	LaBelle H.S.	(863) 674-0408

VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☒	**Change to course title**
☒	**Change to course description**
☒	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The number of contact hours is increased from 1 to 2.**

Course Name, including prefix and number: **AST 2003L – Astronomy I Laboratory: The Solar System**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from **---** to **MAT 1033 or higher with a minimum grade of "C"**

Change in co-requisite from **--- (Note: the course description is clear that this course must be taken with AST 2003)** to **AST 2003**

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is necessary in order to match that of AST 2003, which is a co-requisite course to AST 2003L.**
2) **The change in co-requisite is made in order to provide a more complete educational experience for the students by combining the lab and lecture components of the course.**
3) **The addition of "The Solar System" in the title makes the content of the course clearer to a casual reader.**
4) **The course description is changed from**
   "This is the first of a two-semester course utilizing astronomy tools, incorporating laboratory which utilizes an observatory, planetarium and astrophotography or imaging equipment. This course is to be taken only in conjunction with the accompanying lecture AST 2003."
   to
   "This course is the first part of a sequence of two courses that provide a hands-on introduction to astronomy as a quantitative observational science. The sequence consists of in-class and out-of class activities and observations. This course is designed to provide an introduction to the night sky, and astronomical tools and methods."
   The new description better describes the content of the entire sequence and of this course. It is also necessary in the absence of an observatory, planetarium or imaging equipment; however, if a campus had such equipment, the new description covers their use.
5) **The topic outline and Learning Outcomes have been updated as part of the College's efforts in curriculum review.**
6) **The number of contact hours for this course is increased to 2 (from 1). This is necessary because of the increased quality and depth of the lab activities.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____ Date_____

Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ DATE: _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ DATE: _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ DATE: _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ DATE: _____

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Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PREOFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

AST 2003L – ASTRONOMY I LABORATORY: THE SOLAR SYSTEM – AA – 1 CREDIT HOUR

This course is the first part of a sequence of two courses that provide a hands-on introduction to astronomy as a quantitative observational science. The sequence consists of in-class and out-of class activities and observations. This course is designed to provide an introduction to the night sky, and astronomical tools and methods.

II. PREREQUISITES FOR THE COURSE:

MAT 1033 or higher with a minimum grade of "C"

Co-requisite: AST 2003

III. GENERAL COURSE INFORMATION: Topic outline

- The celestial sphere and star charts
- Star counting and sampling techniques
- The orbital motion of Mercury and the apparent motion of Mars
- Kepler's Laws
- The Doppler effect and Mercury's rotational period
- The diameter of Pluto and Charon
- Telescopes
- Spectroscopy
- Observations of selected objects in the sky

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Use star charts to locate stars and constellations by their right ascension and declination; compare astronomical and astrological predictions.	Lab reports, exams and/or projects.	CT
Use sampling to count the number of stars seen by the naked eye in the night sky.		CT, QR
Use observational data to draw conclusions about the shapes of planetary orbits (such as the orbit of Mercury and Mars).		CT, QR, TIM
Determine the mass of the Moon by using Kepler's Laws and observational data of a satellite's orbit around the Moon.		CT, QR
Determine Mercury's rotational period by using reflected radar data.		CT, QR
Use occultation data from the Pluto-Charon system to determine the diameter of each of the two objects.		CT, QR
Construct a telescope and use it to make observations.		CT
Identify gaseous elements by their spectral lines.		CT
Record the positions and sketch the motions of the Moon, Sun, Venus and Jupiter at specific times during the semester; formulate a model for their relative positions and motions.		COM, CT

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☒	**Change to course title**
☒	**Change to course description**
☒	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☐	**Other (specify)**

Course Name, including prefix and number: **AST 2004 – Astronomy II: Stars, Galaxies, and Cosmology**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from **MAT 1033 or higher** to **MAT 1033 or higher with a minimum grade of "C"**

Change in co-requisite from **---** to **AST 2004L**

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Course fee change from to (Attach course fee worksheet, if applicable)

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is a clarification, in the sense that a student must receive a "C" or better in MAT 1033 (or higher level math course).**
2) **The change in co-requisite is made in order to provide a more complete educational experience for the students by combining the lab and lecture components of the course.**
3) **The addition of "Stars, Galaxies, and Cosmology" in the title makes the content of the course clearer to a casual reader.**
4) **The course description is changed from**
   "This course is part two of the two-semester astronomy sequence but may be taken without having taken AST 2003. AST 2004 goes beyond the solar system to explore the workings of stars and galaxies, as well as the origin and expansion of the universe. AST 2003 and AST 2004 may be taken in any order. Laboratory is required to satisfy the natural sciences graduation requirement."
   to
   "This course is the second part of a sequence of two courses that provide a survey of astronomy as a quantitative observational science. This course is designed to provide an introduction to star formation, stellar properties, the lives and deaths of stars, galaxies, and cosmology. AST 2003 and AST 2004 may be taken in any order."
   The new description better describes the content of the entire sequence and of this course.
5) **The topic outline and Learning Outcomes have been updated as part of the College's efforts in curriculum review.**

TERM IN WHICH PROPOSED ACTION WILL TAKE EFFECT: **Fall 2010** (For any term other than fall of the academic year following submission, approval of the Vice President of Academic and Student Affairs is required.)

_____Date_____
Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

DEPARTMENT CHAIR OR PROGRAM COORDINATOR'S ENDORSEMENT:
_____ **DATE:** _____

ASSOCIATE/ ACADEMIC DEAN ENDORSEMENT: _____ **DATE:** _____

STUDENT ASSESSMENT COMMITTEE CHAIR: _____ **DATE:** _____

DISTRICT DEAN OF INSTRUCTION ENDORSEMENT: _____ DATE: _____

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Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PREOFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

AST 2004 – ASTRONOMY II: STARS, GALAXIES, AND COSMOLOGY – AA – 3 CREDIT HOURS

This course is the second part of a sequence of two courses that provide a survey of astronomy as a quantitative observational science. This course is designed to provide an introduction to star formation, stellar properties, the lives and deaths of stars, galaxies, and cosmology. AST 2003 and AST 2004 may be taken in any order.

II. PREREQUISITES FOR THE COURSE:

MAT 1033 or higher with a minimum grade of "C"

Co-requisite: AST 2004L

III. GENERAL COURSE INFORMATION: Topic outline

- Astronomical tools and methods
- Stellar properties
- The interstellar medium and star formation
- The lives and deaths of low-mass stars
- The deaths of massive stars: neutron stars and black holes
- Our Galaxy
- A diversity of galaxies
- Cosmology
- The search for extraterrestrial intelligence

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

Critical Thinking (CT): To demonstrate skills necessary for analysis, synthesis, and evaluation.

Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Describe the law of gravitation and use it along with the laws of motion to describe planetary orbits.	Homework and/or quizzes and/or tests and/or group assignments and/or projects.	CT, QR
Identify the various observational tools used in astronomy and categorize and differentiate the regions of the electromagnetic spectrum.		CT
Identify, describe, and compare the different layers in the Sun's interior and atmosphere.		COM, CT
Compare the various methods of measuring distances and other stellar properties.		CT, QR
Interpret the H-R diagram and use it to describe stellar evolution.		COM, CT
Describe the properties of the interstellar medium and theories of stellar formation.		COM, CT
Trace and compare the life histories of stars of various masses.		COM, CT
Compare the properties of white dwarfs, neutron stars, and black holes.		COM, CT
Describe the physical makeup, stellar populations, and evolution of our Galaxy.		COM, CT
Compare the different types of galaxies and theories of their origin, and describe the nature of active galactic nuclei.		COM, CT
Differentiate among cosmological models and identify their limitations.		COM, CT, TIM, QR

Describe efforts to communicate with extraterrestrial intelligence and identify the obstacles astronomers face in pursuing such searches.		CT, QR

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

EDISON STATE COLLEGE

CURRICULUM COMMITTEE
CHANGE OF COURSE PROPOSAL FORM

TO: CURRICULUM COMMITTEE
FROM: Theo Koupelis
PRESENTER: Peggy Romeo
DATE: 4/23/10

TYPE OF COURSE CHANGE: Check all that apply.

☐	**Change to course number**
☒	**Change to course title**
☒	**Change to course description**
☒	**Change to course co-requisites**
☒	**Change to course prerequisites**
☒	**Change to course learning outcomes****
☐	**Change to course transfer designation**
☐	**Change to course credits**
☒	**Other (specify)** **The number of contact hours is increased from 1 to 2.**

Course Name, including prefix and number: **AST 2004L – Astronomy II Laboratory: Stars, Galaxies, and Cosmology**

Class credits: from to

Lab credits: from to

Combined lab & class credits: from to

From ☐ AA/AP to ☐ AS/PSV From ☐ AS/PSV to ☐ AA/AP

From ☐ AS to ☐ BS

From ☐ degree core requirement to ☐ elective OR

From ☐ elective to ☐ degree core requirement

From ☐ part of general education program to ☐ not part of general education program

OR From ☐ not part of general education program to ☐ part of general education program

Change in prerequisites from **---** to **MAT 1033 or higher with a minimum grade of "C"**

Change in co-requisite from **--- (Note: the course description is clear that this course must be taken with AST 2004)** to **AST 2004**

Is there a Major Restriction? yes no (meaning only declared majors may take the course)

Please disregard any changes needed for learning outcomes. Learning outcomes will be looked at thoroughly May 10th through May 12th.

Course fee change from to (Attach course fee worksheet, if applicable)

JUSTIFICATION FOR CURRICULUM ACTION, OTHER EXPLANATORY INFORMATION:

1) **The change in prerequisite is necessary in order to match that of AST 2004, which is a co-requisite course to AST 2004L.**
2) **The change in co-requisite is made in order to provide a more complete educational experience for the students by combining the lab and lecture components of the course.**
3) **The addition of "Stars, Galaxies, and Cosmology" in the title makes the content of the course clearer to a casual reader.**
4) **The course description is changed from**
   "This advanced laboratory makes continued use of observatory-collected data through imaging equipment, as well as Internet-accessible data, through use of Hubble telescope images. This course is to be taken only in conjunction with the accompanying lecture AST 2004."
   to
   "This course is the second part of a sequence of two courses that provide a hands-on introduction to astronomy as a quantitative observational science. The sequence consists of in-class and out-of class activities and observations. This course is designed to provide an introduction to astronomical tools and methods that allow us to explore the lives of stars and galaxies, as well as the origin and expansion of the universe."
   The new description better describes the content of the entire sequence and of this course. It is also necessary in the absence of an observatory or imaging equipment; however, if a campus had such equipment, the new description covers their use.
5) **The topic outline and Learning Outcomes have been updated as part of the College's efforts in curriculum review.**
6) **The number of contact hours for this course is increased to 2 (from 1). This is necessary because of the increased quality and depth of the lab activities.**

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_____Date_____

Signature of Vice President of Academic and Student Affairs (if required)

FACULTY ENDORSEMENTS:

The science faculty support this change.

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Fall 2009

EDISON STATE COLLEGE

Division of Arts and Sciences

COMMON COURSE SYLLABUS

PREOFESSOR: **OFFICE LOCATION:**

E-MAIL: **PHONE NUMBER:**

OFFICE HOURS: **SEMESTER:**

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDIT HOURS:

AST 2004L – ASTRONOMY II LABORATORY: STARS, GALAXIES, AND COSMOLOGY – AA – 1 CREDIT HOUR

This course is the second part of a sequence of two courses that provide a hands-on introduction to astronomy as a quantitative observational science. The sequence consists of in-class and out-of class activities and observations. This course is designed to provide an introduction to astronomical tools and methods that allow us to explore the lives of stars and galaxies, as well as the origin and expansion of the universe.

II. PREREQUISITES FOR THE COURSE:

MAT 1033 or higher with a minimum grade of "C"

Co-requisite: AST 2004

III. GENERAL COURSE INFORMATION: Topic outline

- The diameter of the Sun
- Parallax and proper motion of a star
- Stellar magnitudes and blackbody radiation
- The Hertzsprung-Russell (H-R) Diagram
- Cepheid variables as distance candles
- The Galactic distribution of clusters
- Galactic redshifts and cosmology
- Deep sky objects with a small telescope
- The scale of our Galaxy
- The search for extraterrestrial intelligence

IV. LEARNING OUTCOMES AND ASSESSMENT:

GENERAL EDUCATION COMPETENCIES:
General education courses must meet at least four out of the five following outcomes. All other

courses will meet one or more of these outcomes.

Communication (COM): To communicate effectively using standard English (written or oral).

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Technology/Information Management (TIM): To demonstrate the skills and use the technology necessary to collect, verify, document, and organize information from a variety of sources.

Global Socio-cultural Responsibility (GSR): To identify, describe, and apply responsibilities, core civic beliefs, and values present in a diverse society.

Scientific and Quantitative Reasoning (QR): To identify and apply mathematical and scientific principles and methods.

ADDITIONAL COURSE COMPETENCIES:
At the conclusion of this course, students will be able to demonstrate the following additional competencies:

LEARNING OUTCOMES	ASSESSMENTS	GENERAL EDUCATION COMPETENCY
Measure the diameter of the Sun using pinhole projection.	Lab reports, exams and/or projects.	CT, QR
Measure the proper motion of Barnard's star and determine the star's motion in space.		CT, QR
Apply the concepts of apparent magnitude, absolute magnitude, and blackbody radiation in comparing the brightnesses of celestial objects.		CT, QR
Explore the relations among stars using the H-R diagram.		CT, QR, TIM
Use the period-luminosity relationship for Cepheid variables and calculate their distances.		CT, QR
Construct the shape of our Galaxy and locate our position in it by using observational data of clusters of stars.		COM, CT, QR
Deduce the size and age of the observable universe by using Hubble's law.		CT, QR
Locate and observe deep sky objects using their coordinates and a telescope.		
Construct a scale drawing of our Galaxy by using appropriate observational and theoretical data for the diameter of the Sun, solar system, and Galaxy.		CT, QR

Develop a method of communicating with an extraterrestrial civilization.		CT

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VI. REQUIREMENTS FOR THE STUDENTS:

VII. ATTENDANCE POLICY:

VIII. GRADING POLICY:

IX. REQUIRED COURSE MATERIALS:

X. RESERVED MATERIALS FOR THE COURSE:

XI. CLAST COMPETENCIES INVOLVED IN THIS COURSE:

XII. CLASS SCHEDULE:

XIII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

DELETION OF COURSES

Please list course numbers/titles that need to be purged from the next College Catalog, and the Statewide Course Numbering System (SCNS) which have not been taught for five (5) years, or less if desired.

Course Identification Number	Course Title
GLY 1010	Physical Geology
GLY 1010L	Physical Geology Laboratory
GLY 1100	Historical Geology
GLY 1100L	Historical Geology Laboratory

Academic Dean's Signature Date

(Please submit to the Vice President of Academic and Student Affairs)