Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Calculus for Business & Social Sciences
Course Prefix, Num. and Title	Math 1325
Division	Math & Physical Sciences
Department	Mathematics
Course Type	Academic WCJC Core Course
Course Catalog Description	This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for MATH 2413, Calculus I.
Pre-Requisites	MATH 1314 (College Algebra) or MATH 1324 (Mathematics for Business and Social Sciences)
Co-Requisites	None

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours	3:3:0
Equated Pay Hours	3
Lab/Other Hours Breakdown: Lab Hours	0
Lab/Other Hours Breakdown: Clinical Hours	0
Lab/Other Hours Breakdown: Practicum Hours	0
Other Hours Breakdown	0

Approval Signatures

Title	Signature	Date
Prepared by:	Yvonne Smith Digitally signed by Yvonne Smith DN: cn=Yvonne Smith, o=WCJC, ou=Math and Physical Science, email=smithy@wcjc.edu, c=US Date: 2020.04.22 10:24:26 -05'00'	4-22-2020
Department Head:	Yvonne Smith Digitally signed by Yvonne Smith DN: cn=Yvonne Smith, o=WCJC, ou=Math and Physical Science, email=smithy@wcjc.edu, c=US Date: 2020.04.22 10:24:40 -05'00'	4-22-2020
Division Chair:	Jennifer Mauch Digitally signed by Jennifer Mauch DN: cn=Jennifer Mauch, o=Wharton County Junior College, ou=Mathematics, email=mauchj@wcjc.edu, c=US Date: 2020.04.21 16:44:00 -05'00'	4-21-2020
Dean/VPI:	Leigh Ann collins Digitally signed by Leigh Ann collins DN: cn=Leigh Ann collins, o=WCJC, ou=VPI, email=lacollins@wcjc.edu, c=US Date: 2020.04.23 15:34:56 -05'00'	4-23-20
Approved by CIR:	Paul J. Quinn Digitally signed by Paul J. Quinn Date: 2020.04.27 13:09:14 -05'00'	12-11-19

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Unit 1 - Limits and Derivatives
Section 11.1 – Limits
Section 11.2 – One-Sided Limits and Limits Involving Infinity
Section 11.3 – Rates of Change
Section 11.4 – Tangent Lines and Derivatives
Section 11.5 – Derivative Formulas

Unit 2 - More Derivative Rules and Continuity
Section 11.6 – The Produce and the Quotient Rule
Section 11.7 – The Chain Rule and the Power Rule
Section 11.8 – Derivatives of Exponential and Logarithmic Functions
Section 11.9 – Continuity and Differentiability

Unit 3 - Applications of the Derivative
Section 12.1 – Local Extrema
Section 12.2 – The Second Derivative
Section 12.3 – Optimization Applications
Section 12.4 – Implicit Differentiation
Section 12.5 – Related Rates
Section 12.6 – Curve Sketching

Unit 4 - Indefinite Integrals
Section 13.1 – Antiderivatives
Section 13.2 – Integration by Substitution
Section 13.3 – Integration by Parts
Section 13.4 – Area and the Definite Integral
Section 13.5 – The Fundamental Theorem of Calculus
Section 13.6 – Applications of Integrals

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

1. Apply calculus to solve business, economics, and social sciences problems.
2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
3. Solve application problems involving implicit differentiation and related rates.
4. Solve optimization problems with emphasis on business and social sciences applications.
5. Determine appropriate technique(s) of integration.
6. Integrate functions using the method of integration by parts or substitution, as appropriate.
7. Solve business, economics, and social sciences applications problems using integration techniques.

Methods of Assessment:

Final Exam (Required)

Other Methods of Assessment:

- Hour Exams

- Homework
- Quizzes
- Short Answer
- Discussion Board
- Participation
- Projects

Required text(s), optional text(s) and/or materials to be supplied by the student:

Mathematics with Applications by Lial et al, Pearson, 12th edition.

Students must have computer access to the WCJC website, their WCJC student email and online accounts. WCJC has open computer labs, with internet access, on all campuses for students to use.

Suggested Course Maximum:

35

List any specific or physical requirements beyond a typical classroom required to teach the course.

None

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

A. Final Exam	15-30%
B. Other Course Requirements	70-85%

A = 90-100
B = 80-89
C = 70-79
D = 60-69
F = 59 or below

Curriculum Checklist:

☐**Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.

☒**Administrative WCJC Core Course**. Attach the Core Curriculum Review Forms

- ☒Critical Thinking
- ☒Communication
- ☒Empirical & Quantitative Skills
- ☐Teamwork
- ☐Social Responsibility
- ☐Personal Responsibility

☐**WECM Course** -If needed, revise the Program SCANS Matrix and Competencies Checklist

Wharton County Junior College

Core Curriculum Review Form

Foundational Component Area: Core 020: Mathematics

Course Prefix & Suffix: MATH 1325 – Calculus for Business and Social Sciences

Core Objective:
Critical Thinking Skills—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Student Learning Outcome Supporting Core Objective:
For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Apply calculus to solve business, economics, and social sciences problems. (SLO #1)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a grief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for critical thinking will assess this objective.
Choose a SLO status.	Insert SLO (from Administrative Master Syllabi)	Provide a brief name and description of the sample learning activity.	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective.
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Date: 11-15-2019

Wharton County Junior College

Core Curriculum Review Form

Foundational Component Area: Core 020: Mathematics

Course Prefix & Suffix: MATH 1325 – Calculus for Business and Social Sciences

Core Objective:
Communication Skills—to include effective development, interpretation and expression of ideas through written, oral and visual communication

Student Learning Outcome Supporting Core Objective:
For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Apply calculus to solve business, economics, and social sciences problems. (SLO #1)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a brief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for communication skills will assess this objective.
Choose a SLO status.	Insert SLO (from Administrative Master Syllabi)	Provide a brief name and description of the sample learning activity.	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective.
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Core Curriculum Review Form

Foundational Component Area: Core 020: Mathematics

Course Prefix & Suffix: MATH 1325 – Calculus for Business and Social Sciences

Core Objective:
Empirical and Quantitative Skills—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Student Learning Outcome Supporting Core Objective:
For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
State Mandated	Apply calculus to solve business, economics, and social sciences problems. (SLO #1)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result, including a brief paragraph explaining what was done.	A quiz, test, or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for EQS will assess this objective.
Choose a SLO status.	Insert SLO (from Administrative Master Syllabi)	Provide a brief name and description of the sample learning activity.	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective.
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