The Southeastern Dual Enrollment Mathematics courses provide high school students the opportunity to take college mathematics courses at their high schools, and to simultaneously receive credit on their high school and Southeastern transcripts. The courses are taught with Pearson Publishing’s MathXL software, and the credit is transferable to any institution that accepts mathematics credit from Louisiana universities. There are four courses available through Southeastern’s program. All four of the courses can be taught in a year-long format or in a semester-long format. The four courses are:

**MATH 161** – College Algebra. Credit: 3 hours. A study of families of functions and their graphs. Topics include linear, polynomial, rational, exponential and logarithmic functions.

**MATH 162** – Plane Trigonometry. Credit: 3 hours. Prerequisite: Math 161. The study of trigonometric functions. Topics include the trigonometric functions and their graphs, inverse trigonometric functions, trigonometric identities and trigonometric equations. Trigonometry and trigonometric functions will be used to model and solve real world applications.

**MATH 163** – Applied Calculus. Credit: 3 hours. Prerequisite: Math 161. An introduction to differential and integral calculus designed for non-STEM majors. Topics include limits, the derivative, applications of the derivative, antiderivatives and the definite integral. Polynomial, rational, radical, exponential and logarithmic functions will be studied.

**MATH 241** – Elementary Statistics. Credit: 3 hours. Prerequisite: Math 161. An introduction to statistical reasoning. Topics include graphical display of data, measures of central tendency and variability, sampling theory, the normal curve, standard scores, Student’s T and correlation techniques.

Any school participating in Southeastern’s Mathematics Dual Enrollment Program must offer College Algebra, as it is the prerequisite to all three of the other courses. The school may then choose to offer any combination of, or all of, the other three courses. Note that the new state high school course codes correspond directly to different combinations of these dual enrollment mathematics courses. Also note that Math 163 is a non-trig based calculus course, and as such, would not satisfy college degree requirements for students who major in engineering, mathematics, physics, chemistry, or computer science fields.

### 2018 Summer Workshops

<table>
<thead>
<tr>
<th>Session Title</th>
<th>Dates</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Facilitator / College Algebra (161)</td>
<td>June 5 – 7</td>
<td>Mandatory for all new Dual Enrollment Math facilitators.</td>
</tr>
<tr>
<td></td>
<td>9AM-3PM</td>
<td></td>
</tr>
<tr>
<td>Elementary Statistics (241)</td>
<td>June 12 – 14</td>
<td>Mandatory for any facilitator wishing to offer 241 for the first time in the upcoming school year.</td>
</tr>
<tr>
<td></td>
<td>9AM-3PM</td>
<td></td>
</tr>
<tr>
<td>Applied Calculus (163)</td>
<td>June 19 – 21</td>
<td>Mandatory for any facilitator wishing to offer 163 for the first time in the upcoming school year.</td>
</tr>
<tr>
<td></td>
<td>9AM-3PM</td>
<td></td>
</tr>
<tr>
<td>Trigonometry (162)</td>
<td>July 23 – 24</td>
<td>Mandatory for any facilitator wishing to offer 162 for the first time in the upcoming school year.</td>
</tr>
<tr>
<td></td>
<td>9AM-3PM</td>
<td></td>
</tr>
<tr>
<td>DE Math Workshop</td>
<td>July 30</td>
<td>Mandatory for all Dual Enrollment Math facilitators.</td>
</tr>
<tr>
<td></td>
<td>All Facilitators 9AM-12PM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lunch (All Facilitators) 12-1PM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New Facilitators 1-3PM</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- All Dual Enrollment math facilitators must complete or have completed the New Facilitator/161 workshop before they may attend another workshop or facilitate another Dual Enrollment math course.
- All facilitators new to our program must attend the New Facilitator/161 Workshop, regardless of previous experience with other universities.
- Any facilitator new to our program must facilitate Math 161 at his/her high school at least once before he/she will be allowed to facilitate any of our other courses.
- Once a facilitator has completed the workshop for a particular course, he or she is not required to repeat that workshop in subsequent summers. However, if a facilitator goes three or more school years without facilitating a particular course, then that facilitator will be required to attend the corresponding training again before being allowed to facilitate that course again.
- The only mandatory workshop for returning facilitators who do not wish to facilitate any new courses is the DE Math Workshop at the end of the summer.
- The DE Math Workshop must be repeated every summer.
- If a facilitator has never facilitated one of our DE courses, regardless of when the course-specific training was completed, then that facilitator is still considered “new” and must attend the afternoon session of the DE Math Workshop as well as the morning session.
- A facilitator is not considered eligible to facilitate a course unless he/she has attended the corresponding workshop in its entirety and the DE Math Workshop.
COURSE TITLE: Applied Calculus
ONLINE TEXT: Calculus with Applications, 10th Edition
by Lial, Greewell, and Ritchey
accessed through the MathXL website

CREDIT: 3 semester hours
PUBLISHER: Pearson Education

SOUTHEASTERN INSTRUCTORS OF RECORD:
Ronni Settoon* Amanda Carter Catherine Ramsey
ronni.settoon@selu.edu amanda.carter-4@southeastern.edu catherine.ramsey@southeastern.edu
(985)549-5892 (985)549-5897 (985)549-2860

*Southeastern Contact Person

MATH 163 is a hybrid course with all content delivered online through MathXL OR face-to-face by Southeastern faculty. The Southeastern instructors of record will develop course content and provide online instructional materials such as videos and step-by-step learning aids, ungraded instructional assignments, ungraded quizzes that are similar to exams, and exam study guides to help prepare students to complete the graded assignments and the exams which are also provided by the Southeastern instructors of record. The high school teachers will act as facilitators and assist with student registration and enrollment, proctor exams as necessary, and through supplemental instruction, serve as a daily learning resource for students as they assimilate course content. The students’ final course grades are assigned by the instructors of record.

PREREQUISITE: Successful completion of MATH161, and eligibility for Southeastern Mathematics Dual Enrollment courses, as outlined in the Southeastern Dual Enrollment Eligibility Guidelines.

COURSE DESCRIPTION: Mathematics 163 is an introduction to differential and integral Calculus designed for non-STEM majors. Topics include limits, the derivative, applications of the derivative, antiderivatives, and the definite integral. Polynomial, rational, radical, exponential, and logarithmic functions will be studied. The typical weekly structure of the course includes in-class instruction, computer laboratory work, and out-of-class assignments. Computer and internet access are necessary for completion of all assignments, both in and out of class. Evaluations will be based on homework, quizzes, supplemental in-class paper assignments, tests, a final exam, and classroom participation.

<table>
<thead>
<tr>
<th>Unit Test</th>
<th>Textbook Sections Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>3.1, 3.2, 3.3, 3.4, 3.5</td>
</tr>
<tr>
<td>Test 2</td>
<td>4.1, 4.2, 4.3, 4.4, 4.5, 5.1, 5.2</td>
</tr>
<tr>
<td>Test 3</td>
<td>5.3, 5.4, 6.1, 6.2, 6.4, 6.5</td>
</tr>
<tr>
<td>Test 4</td>
<td>7.1, 7.2, 7.3, 7.4</td>
</tr>
<tr>
<td>Final Exam</td>
<td>All Sections</td>
</tr>
</tbody>
</table>

CALCULATORS: The TI-30XII (solar or battery) is required. The four-function calculator found on MathXL will be available on exams. NO OTHER CALCULATORS ARE ALLOWED ON TESTS, and thus are not recommended for use on homework or quizzes.

DISABILITY ACCESS STATEMENT: If you are a qualified student with a disability seeking accommodations under the Americans with Disabilities Act, you are required to self-identify with your facilitator and/or the appropriate office at your school. That office or your facilitator will be required to forward all relevant information and paperwork to Southeastern Louisiana University. No accommodations will be granted without documentation from your school.
TESTING:
All testing will be done in class, under strict supervision, following guidelines set forth by the Southeastern Louisiana University Mathematics Department.

Students are expected to maintain the highest standards of academic integrity. Behavior that violates these standards is not acceptable. Actions that violate our standards of academic integrity include, but are not limited to, the following: use of unauthorized material, use of any website other than MathXL, use of an unauthorized calculator, communication with fellow students and/or other individuals during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work. Cheating on examinations and plagiarism are considered very serious offenses and shall be grounds for disciplinary action as outlined in Southeastern Louisiana University’s current General Catalogue. (http://www.southeastern.edu/resources/policies/policy_detail/acad_integrity.html)

COURSE GRADES: Percentages earned as follows determine the course grade.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage of Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Tests (10% each)</td>
<td>40% of course grade</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30% of course grade</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10% of course grade</td>
</tr>
<tr>
<td>Homework</td>
<td>10% of course grade</td>
</tr>
<tr>
<td>Supplemental Paper Assignments</td>
<td>5% of course grade</td>
</tr>
<tr>
<td>Class Participation</td>
<td>5% of course grade</td>
</tr>
</tbody>
</table>

COURSE GRADING SCALE

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90% - 100%</td>
<td>A</td>
</tr>
<tr>
<td>80% - 89.9%</td>
<td>B</td>
</tr>
<tr>
<td>70% - 79.9%</td>
<td>C</td>
</tr>
<tr>
<td>60% - 69.9%</td>
<td>D</td>
</tr>
<tr>
<td>below 60%</td>
<td>F</td>
</tr>
</tbody>
</table>

The last day to withdraw from this course is Friday, November 2, 2018, 12:30 p.m. No withdrawals from this course can be made after this date.

HOMEWORK: Homework will be assigned for each section of material covered. Homework need not be completed in one sitting, but it must be completed before the due date and time. You must click the “Submit Homework” button in order for it to count. At the end of the semester, the two lowest homework scores will be dropped.

QUIZZES: There will be a quiz given approximately once per week, usually on material covered in two homework sets. You will be able to submit quizzes up to 10 times (with the best score counted). These must also be completed before the due date and time. You must click the “Submit” button in order for it to count. At the end of the semester, the two lowest quiz scores will be dropped.

MAKE-UP POLICY:
- No makeup work on homework or quizzes will be allowed after the corresponding unit test has been taken.
- All make-up work, including tests, must be completed within two weeks of the original due date for the assignment in question. Exceptions will be possible only in the event of a valid, documented excuse, and will be considered on a case-by-case basis. Any request for consideration of special circumstances must be submitted by your facilitator to the Southeastern Louisiana University Mathematics Department within two weeks of the original due date for the assignment in question.

WORKING FROM HOME: The online material for this course can be accessed from any computer with an internet connection. Internet access and the appropriate plug-ins are required in order to use the website where the notes, homework, and exercises are found. The website for this course is www.mathxl.com. Once you have registered for your class site in MathXL, you will be able to login to the site from home with your login and password. Click into your course and run the Browser Check found on the main page of your course to ensure the correct setup on your own computer. NOTE: Ensure that all homework and quizzes submitted from home are properly saved on the site. You should check your scores online to ensure that credit has been assigned upon submission of each and every assignment. If homework and quiz grades are not successfully sent from home and the deadline passes, the student may not be able to make up the work.

PARTICIPATION POLICIES:
- Class Meetings: Every student is expected to attend and actively participate in class.
- Computer Work: Every student is required to work on assignments for this course both in and out of class every week.
- Your participation score will be assigned and posted by your facilitator.
- If you wish to withdraw from this course, it is your responsibility to complete all procedures for withdrawing from a course.

TESTING RULES:
Southeastern Louisiana University Mathematics testing guidelines include, but are not limited to, the following:
1. Arrive on time for your test. Each and every test is only available for a certain pre-determined amount of time.
2. Your facilitator will provide you with scratch paper. No other paper is allowed.
3. ALL belongings, including cell phones and review materials, must be put away during testing, and should not be near your personal testing area.
4. Absolutely **no cell phones** are allowed during testing. All cell phones must be turned OFF and put away out of sight. If a cell phone is taken out and/or used during a test, it will result in a charge of academic misconduct and a score of ZERO on the test.
5. **No IPODS** or other music devices may be used during tests. Use of any such device during a test will result in a charge of academic misconduct and a score of ZERO on the test.
6. **No calculator other than the TI-30XII or the calculator contained within MathXL may be used during tests.** Use of another unsanctioned calculator during a test will result in a charge of academic misconduct and a score of ZERO on the test.
7. **No website other than MathXL and no other area of MathXL may be accessed during tests.** Accessing any such website during a test will result in a charge of academic misconduct and a score of ZERO on the test.
8. You may **not** write down any information pertaining to test questions to take with you when you leave the classroom after an exam. All scratch paper will be collected before you are allowed to leave. You may not share any test information with anyone who hasn’t taken the test.

**APPEAL AND CHANGE OF GRADE:** After a final course grade is recorded in the Records and Registration Office, a change of grade must be approved in sequence by the instructor (Ms. Settoon), the instructor’s department head, and the academic dean of the College of Science and Technology. In the event of a contested final course grade, a student’s written appeal of the grade must be submitted to the instructor within **thirty (30)** calendar days of final grades for the term being due. The grade appeal should also be submitted to Dr. Jeffrey Temple, Assistant Vice President for Academic Programs. For more information about grade appeals, see [http://www.southeastern.edu/resources/policies/policy_detail/instruction_practices.html](http://www.southeastern.edu/resources/policies/policy_detail/instruction_practices.html).

### DE MATHEMATICS 163 LEARNING OUTCOMES

<table>
<thead>
<tr>
<th>Textbook Section</th>
<th>Student will be able to…</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Limits</td>
<td>Evaluate one-sided limits; Evaluate limits from a graph; Evaluate limits using a table, limit rules, and properties of limits; Solve applied problems using limits.</td>
</tr>
<tr>
<td>3.2 Continuity</td>
<td>Find left and right limits and points of discontinuity from a graph; Find points of discontinuity from a function definition; Solve applied problems involving points of discontinuity.</td>
</tr>
<tr>
<td>3.3 Rates of Change</td>
<td>Find the average rate of change for a function; Find the instantaneous velocity or the rate of change; Solve applications.</td>
</tr>
<tr>
<td>3.4 Definition of the Derivative</td>
<td>Use previous knowledge of slope and continuity to solve problems; Use the definition of the derivative to find f’ or tangent lines; Use a graph to determine qualitative information about the function and/or its derivative; Solve applications.</td>
</tr>
<tr>
<td>3.5 Graphical Differentiation</td>
<td>Sketch or identify the graph of the derivative from the graph of the function; Solve applications.</td>
</tr>
<tr>
<td>4.1 Techniques for Finding Derivatives</td>
<td>Find derivatives and slopes of tangent lines; Solve application problems.</td>
</tr>
<tr>
<td>4.2 Derivatives of Products and Quotients</td>
<td>Use the product rule; Use the quotient rule; Solve application problems.</td>
</tr>
<tr>
<td>4.3 The Chain Rule</td>
<td>Find compositions of functions; Use the chain rule to find derivatives; Solve application problems.</td>
</tr>
<tr>
<td>4.4 Derivatives of Exponential Functions</td>
<td>Find derivatives of exponential functions; Solve application problems.</td>
</tr>
<tr>
<td>4.5 Derivatives of Logarithmic Functions</td>
<td>Find derivatives of logarithmic functions; Answer conceptual questions; Explore logarithmic differentiation; Solve application problems.</td>
</tr>
<tr>
<td>5.1 Increasing and Decreasing Functions</td>
<td>Determine the intervals on which a function is increasing or decreasing using a graph; Determine critical numbers and the intervals on which a function is increasing or decreasing; Solve application problems.</td>
</tr>
<tr>
<td>5.2 Relative Extrema</td>
<td>Locate and identify relative extrema from a graph of f or f’ and algebraically; Solve application problems.</td>
</tr>
<tr>
<td>5.3 Higher Derivatives, Concavity, and the Second Derivative Test</td>
<td>Find and evaluate higher derivatives; Find inflection points and determine concavity both from a graph of f or f’ and algebraically; Find critical numbers and use the second derivative test; Solve application problems.</td>
</tr>
<tr>
<td>5.4 Curve Sketching</td>
<td>Sketch the graph of a function given its formula; Sketch the graph of a function that satisfies certain properties.</td>
</tr>
<tr>
<td>6.1 Absolute Extrema</td>
<td>Find absolute extrema from a graph; Find absolute extrema on a closed or open interval; Solve applications.</td>
</tr>
<tr>
<td>6.2 Applications of Extrema</td>
<td>Solve maximization problems; Solve applications involving cost, revenue, or profit; Solve applications involving area or volume; Solve other applications.</td>
</tr>
<tr>
<td>6.4 Implicit Differentiation</td>
<td>Use implicit differentiation to find dy/dx; Use implicit differentiation to find equations of tangent lines; Solve applications.</td>
</tr>
<tr>
<td>6.5 Related Rates</td>
<td>Evaluate dy/dt at a point given the relationship between x and y and the value of dx/dt; Solve applications.</td>
</tr>
<tr>
<td>7.1 Antiderivatives</td>
<td>Find indefinite integrals and solve application problems.</td>
</tr>
<tr>
<td>7.2 Substitution</td>
<td>Use substitution to find indefinite integrals and solve application problems.</td>
</tr>
<tr>
<td>7.3 Area and the Definite Integral</td>
<td>Approximate areas; Use definite integrals to find exact areas; Solve application problems.</td>
</tr>
<tr>
<td>7.4 The Fundamental Theorem of Calculus</td>
<td>Evaluate definite integrals; Use the definite integral to find area; Solve application problems using the definite integral.</td>
</tr>
</tbody>
</table>
Important dates to remember:
Last day to enroll for fall-only/year-long courses: August 27, 2018
Last day to DROP fall-only/year-long courses: September 9, 2018
Last day to WITHDRAW from fall-only courses: November 2, 2018

Last day to enroll for spring-only courses: January 25, 2019
Last day to DROP spring-only courses: February 1, 2019
**Last day to WITHDRAW from year-long/spring-only courses: March 29, 2019**