



# INSTRUCTIONAL PACKAGE

MAT 130

Elementary Calculus

Effective Term  
2020—2021 Academic Year

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## Part I: Course Information

Effective Term: 2020—2021 Academic Year

COURSE PREFIX: MAT 130

COURSE TITLE: Elementary Calculus

CONTACT HOURS: 3.0

CREDIT HOURS: 3.0

### **RATIONALE FOR THE COURSE:**

This course is designed to introduce the fundamental concepts of calculus to the non-science major. The focus is on the usefulness of calculus in solving problems in many fields of interest. The fundamental skills learned will prepare the student for specialized classes in their field that utilize calculus.

### **COURSE DESCRIPTION:**

This course includes the following topics: differentiation and integration of polynomials, rational, logarithmic, and exponential functions; and interpretation and application of these processes. (Prerequisite: College Algebra) This course is transferable to public senior institutions as part of the South Carolina Commission on Higher Education Statewide Articulation Agreement.

### **PREREQUISITES/CO-REQUISITES:**

ACT Math 26 or COMPASS Algebra 75 or New ACCUPLACER Adv Algebra 270 or SAT Mathematics 630 or New SAT Mathematics 650 or Credit level [MAT 110](#) Minimum Grade of C or Credit level [MAT 110](#) Minimum Grade of TC or Credit level [MAT 176](#) Minimum Grade of C or Credit level [MAT 176](#) Minimum Grade of TC or ( Multiple Measures Math 1)

\***Online/Hybrid** courses require students to complete the DLI Online Student Orientation prior to completing an online course. The DLI Online Student Orientation can be found in WaveNet, under the My Student tab.

### **REQUIRED MATERIALS:**

1. Please visit the Bookstore online site for most current textbook information. Use the direct link below to find textbooks.  
[BOOKSTORE](#).

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

2. Scientific/Graphing Calculator: Recommended models - Texas Instruments TI-83, or TI-83 Plus

### **TECHNICAL REQUIREMENTS:**

Access to Desire2Learn (D2L), HGTC's student portal for course materials.  
WaveNet and D2L email access.

### **STUDENT IDENTIFICATION VERIFICATION**

Students enrolled in online courses will be required to participate in a minimum of one (1) proctored assignment and/or one (1) virtual event to support student identification verification. Please refer to your Instructor Information Sheet for information regarding this requirement.

### **CLASSROOM ETIQUETTE:**

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

**NETIQUETTE:** is the term commonly used to refer to conventions adopted by Internet users on the web, mailing lists, public forums, and in live chat focused on online communications etiquette. For more information regarding Netiquette expectations for distance learning courses, please visit [Online Netiquette](#).

## **Part II: Student Learning Outcomes**

### **COURSE LEARNING OUTCOMES and ASSESSMENTS\*:**

The student should be able to:

1. Find and evaluate limits graphically, numerically, and analytically.
2. Verify the continuity or discontinuity of a function.
3. Find the derivatives of functions using the definition and the following rules for differentiation: Constant, Simple Power, Constant Multiple, Sum, Difference, Product, Quotient, and Chain.
4. Find higher order derivatives
5. Find derivatives using implicit differentiation.
6. Find relative and absolute extrema of a function, and using the First Derivative Test.
7. Determine the concavity of a function, finding the points of inflection, and using the Second Derivative Test.
8. Solve related rates problems and optimization problems by algebra and calculus techniques.
9. Find derivatives of exponential and logarithmic functions.
10. Understand indefinite integration, and find anti-derivatives by applying the following rules for integration: Constant, Constant Multiple, Sum, Difference, Simple Power, and General Power.
11. Integrate by substitution or change in variables.

12. Integrate exponential and logarithmic functions.
13. Evaluate definite integrals using the rules for integration listed above and by the substitution method.
14. Understand and apply the Fundamental Theorem of Calculus.

### **UNIT I**

1. Understand the concept of the limit of a function and be able to evaluate the limit of a function.
2. Define continuity and be familiar with the properties of continuous functions.  
Text Reference: Ch. 1 (Only Sections 1.5, 1.6)

### **UNIT II**

1. Know the definition of the derivative of a function and find the derivative of a function using the definition.
2. Know and apply the rules for differentiation.
3. Calculate rates of change using derivatives.
4. Know and apply the product and quotient rules.
5. Know and apply the chain rule.
6. Find higher order derivatives.
7. Understand and perform implicit differentiation.
8. Solve related rates problems.  
Text Reference: Ch. 2

### **UNIT III**

1. Understand and apply increasing/decreasing tests.
2. Understand and apply the first derivative test.
3. Understand and apply the second derivative test.
4. Solve optimization problems.
5. Solve business and economics applications.
6. Understand and find asymptotes.
7. Analyze and sketch the graph of a function.  
Text Reference: Ch. 3

### **UNIT IV**

1. Understand exponential functions and use the properties of exponents.
2. Differentiate exponential functions.
3. Understand logarithmic functions, use the properties of logarithms, and solve exponential equations.
4. Differentiate and integrate logarithmic functions.  
Text reference: Ch. 4

### **UNIT V**

1. Recognize integral notation and evaluate integrals.

2. Apply the power rule for integrals.
3. Evaluate integrals related to the exponential and logarithmic functions.
4. Understand the Fundamental Theorem of Calculus.
5. Understand and evaluate definite integrals.

Text reference: Ch. 5

***\*Students – please refer to the Instructor’s Course Information sheet for specific information on assessments and due dates.***

## **Part III: Grading and Assessment**

### **EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS\***

***\*Students, for the specific number and type of evaluations, please refer to the Instructor’s Course Information Sheet.***

#### **GRADING SYSTEM:**

- A 90-100%
- B 80-89%
- C 70-79%
- D 60-69%
- F Below 60%

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the academic calendar for deadlines for add/drop ([ACADEMIC CALENDAR](#)). You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

## **Part IV: Attendance**

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two

(2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

**For online and hybrid courses**, check your Instructor's Course Information Sheet for any required on-site meeting times. Please note, instructors may require tests to be taken at approved testing sites, if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

## Part V: Student Resources



### The Student Success and Tutoring Center (SSTC)

The SSTC offers to all students the following **free** resources:

- 1. Academic coaches** for most subject areas, **Writing Center Support**, and **college success skills.**
- 2. On-line student success and academic support resources.**

Visit the SSTC website: [Student Success & Tutoring Center](#) and visit the student services tab in your WaveNet account to schedule appointments using TutorTrac. For more information, call: SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455 or go to the [Online Resource Center](#) to access on-demand resources any time.

### TECH Central – Student Information Center



TECH Central provides quality enrollment and collegiate guidance for students, faculty, and staff. Services include phone, walk-in, and online technical support for technology training and troubleshooting. Additionally, we offer support in Office 365, Outlook E-mail setup, and ID cards.

**Phone:** 843-349-5340

**Email:** [techcentral@hgtc.edu](mailto:techcentral@hgtc.edu)

**Text:** 843-357-8552

**TECH Talk (Live Chat):** Located on the "Home" tab in WaveNet.

**Website:** [www.hgtc.edu/techcentral](http://www.hgtc.edu/techcentral)

**Locations:**

Conway Building 1100, Room 132D  
Grand Strand Building 200, Room 136

**Student Testing:**

Testing in an **online/hybrid** course may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms

Furthermore, tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through RPNOW, our online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

**Disability Services:**

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to Beth Havens, Director of Student Development on the Conway Campus Jaime Davis, Counselor/Advisor on the Georgetown Campus or Kristin Griffin, Counselor on the Grand Strand Campus. These individuals will review documentation of the student's disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

**Statement of Equal Opportunity/Non-Discrimination Statement**

Horry-Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation in educational programs and/or activities.

Inquiries regarding the non-discrimination policies: Students and prospective student inquiries

concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs, Dr. Melissa Batten, VP Student Affairs, Title IX Coordinator, Building 1100, Room 107A, Conway Campus, PO Box 261966, Conway, SC 29528-6066, 843-349-5228, [Melissa.Batten@hgtc.edu](mailto:Melissa.Batten@hgtc.edu). Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources, Jacquelyne Snyder, VP Human Resources, Section 504, Title II, and Title IX Coordinator, Building 200, Room 212A, Conway Campus, PO Box 261966, Conway, SC 29528-6066, 843-349-5212, [Jacquelyne.Snyder@hgtc.edu](mailto:Jacquelyne.Snyder@hgtc.edu).

**Title IX Requirements**

All students (as well as other persons) at Horry-Georgetown Technical College are protected by Title IX—regardless of their sex, sexual orientation, gender identity, part- or full-time status, disability, race, or national origin—in all aspects of educational programs and activities. Any student, or other member of the college community, who believes that he/she is or has been a victim of sexual harassment or sexual violence may file a report with the college’s Chief Student Services Officer, campus law enforcement, or with the college’s Title IX Coordinator, or designee.

\*Faculty and Staff are required to report incidents to the Title IX Coordinators when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

<p><b>Inquiries regarding the non-discrimination policies:</b></p>	
<p>Student and prospective student inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.</p>	<p>Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources.</p>
<p><b>Dr. Melissa Batten, VP Student Affairs</b>  <i>Title IX Coordinator</i></p> <p>Building 1100, Room 107A, Conway Campus          PO Box 261966, Conway, SC 29528-6066          843-349-5228  <a href="mailto:Melissa.Batten@hgtc.edu">Melissa.Batten@hgtc.edu</a></p>	<p><b>Jacquelyne Snyder, VP Human Resources</b>  <i>Section 504, Title II, and Title IX Coordinator</i></p> <p>Building 200, Room 212A, Conway Campus          PO Box 261966, Conway, SC 29528-6066          843-349-5212  <a href="mailto:Jacquelyne.Snyder@hgtc.edu">Jacquelyne.Snyder@hgtc.edu</a></p>



