AU: MATH 168 Precalculus
Summer 2019
AU MATH 168 Precalculus

Consortium of Adventist Colleges and Universities

Self-Paced Full Term Courses
This is a Self-Paced Full Term course which follows the Andrews semester schedule. Self-Paced Full Term courses have four important dates: 1) a start date, 2) a midterm completion date, 3) a final completion date, and 4) a course completion date. Please note that all module prior to the midterm must be completed BEFORE the midterm and all modules between the midterm and final must be completed BEFORE the final.

Instructor Contact
Please refer to course in LearningHub for the teacher contact information.

Communication with the Instructor
It is important to remember that while the Internet is available 24 hours a day, your instructor is not. You can expect that your instructor will respond to e-mail message to you within 2 business days during the week and may not be available to respond on weekends.

Other Assistance

<table>
<thead>
<tr>
<th>Assistance</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username and password assistance</td>
<td><a href="mailto:helpdesk@andrews.edu">helpdesk@andrews.edu</a></td>
<td>(269) 471-6016</td>
</tr>
<tr>
<td>Enrollment and withdrawal questions</td>
<td><a href="mailto:sderegister@andrews.edu">sderegister@andrews.edu</a></td>
<td>(269) 471-6323</td>
</tr>
<tr>
<td>Technical assistance with online courses</td>
<td><a href="mailto:dlit@andrews.edu">dlit@andrews.edu</a></td>
<td>(269) 471-3960</td>
</tr>
<tr>
<td>Exam requests and online proctoring</td>
<td><a href="mailto:sdeexams@andrews.edu">sdeexams@andrews.edu</a></td>
<td>(269) 471-6566</td>
</tr>
<tr>
<td>Distance Student Services - any other questions</td>
<td><a href="mailto:sdestudents@andrews.edu">sdestudents@andrews.edu</a></td>
<td>(269) 471-6566</td>
</tr>
</tbody>
</table>

Part 1: Course Information

Course Description
Andrews University
Linear, quadratic, and absolute value equations and inequalities with applications; radical equations; polynomial, rational, exponential, logarithmic, inverse, trigonometric functions; higher order equations; exponential and logarithmic equations; the unit circle, trigonometric identities and equations; Law of Sines and Cosines; vectors in the plane, polar coordinates and graphs; complex numbers and De Moivre’s Theorem; conic sections.

Course Prerequisites
Andrews University
SAT Math ≥ 510 or ACT Math ≥ 22 or Andrews Math Placement Exam ≥ P3 or MATH 165 or MATH 166

Course Learning Outcomes

• To develop a demonstrable understanding of the topics outlined in the course description.
• To successfully engage in mathematical reasoning, problem solving, and expression.
• To appreciate how God reveals the beauty and order of the universe through the language of Mathematics.
Required Text/Material

**NOTE:** Purchase textbooks through any online bookstore, such as [amazon.com](http://amazon.com), which can deliver within 2 days. If you need to use financial aid to purchase textbooks, order through [bookstore.andrews.edu](http://bookstore.andrews.edu), then email sdestudents@andrews.edu to assist with the payment from your account and shipping from the campus Bookstore.

Credit Hour and Commitment
This course is offered for 4 credits; therefore, it is expected that you would spend 12 hours per week if you are on pace to finish in 15 weeks, and 22 ½ hours per week if you wish to complete in 8 weeks.

Under the 15 week pace, it is suggested that you divide your weekly study time as follows:

- Textbook Reading: 2 hours
- Online Lectures: 3 hours
- Journal Posts: 30 minutes
- WeBWorK Assignments: 5 hours 30 minutes
- Solution-Write Up Assignments: 1 hour

This schedule will vary somewhat throughout the course, especially in weeks where exams are scheduled.

Part 2: Course Methods and Delivery

Methods of Instruction
Methods of instruction include assigned readings from the textbook and the course material, short essays and reflections on the reading, short open book quizzes on the readings, interactions with the instructor via blogs, and two exams. Regular participation in the course is essential to good performance.

Course/Technical Requirements
- Internet connection (DSL, LAN, or cable connection desirable).

LearningHub Access
This course is delivered online through LearningHub at [http://learninghub.andrews.edu](http://learninghub.andrews.edu)

Your username and password are your Andrews username and password. You need to activate your username and password to access LearningHub.

Please do this online here: [https://vault.andrews.edu/vault/pages/activation/information.jsp](https://vault.andrews.edu/vault/pages/activation/information.jsp) if you haven’t already. If you need assistance, call or email us: (296) 471-6016 or helpdesk@andrews.edu.

If you need technical assistance at any time during the course, or to report a problem with LearningHub, please email dlit@andrews.edu or call (269) 471-3960.
Part 3: Course Requirements

**Important Note:** Activity and assignment details will be explained in detail within each learning module. If you have any questions, please contact your instructor.

**Assessment Descriptions**

**Assignment Submission and Grading**

All assignments for this course will be submitted electronically through Moodle and WeBWorK unless otherwise instructed. Assignments and exams must be completed in the order noted on the schedule.

Feedback on assignments and exams will be provided in a timely manner, as outlined below.

- **WeBWorK Assignments**
  Feedback is provided instantaneously by the WeBWorK system. If you have questions, or believe that you have entered a correct solution and it is not being accepted, please email your instructor using the Email Instructor button at the bottom of each WeBWorK page.

- **Solution Write-Up Assignments**
  Your instructor will grade your write-up assignments and post your final score, along with comments on any improvements you should make to your solution writing, within one week of the date on which you submit the assignment.

- **Journal Posts**
  Feedback on your journal posts will be provided within one week of your submission.

- **Exams**
  Midterm and Final exams will be graded within one week of the date that your instructor receives the exam. Exam scores will be posted, but the exams themselves will not be returned. You may contact your instructor for additional feedback on your exam performance.

**Non-Graded Activities**

Even though these activities do not count directly towards your grade, they are important steps in the learning process.

- **Textbook Readings**
  Before starting the lessons or attempting the assignments for a given section, you must read the associated textbook section. Mathematics textbooks should be read with pencil and paper so that you can work your way through the examples as you read.

- **Lessons**
  The lessons are equivalent to a lecture in a face-to-face course. They allow your instructor to highlight the most important parts of each section, give useful hints or shortcuts, and provide you with examples in addition to those given in the text. You should read through the lessons and watch the video examples before starting on the associated WeBWorK or write-up assignment.
Rubrics
These assignments give you the opportunity to demonstrate mastery of the course material. They are divided into several categories, each with a specific purpose and weight.

- **WeBWorK Assignments (20% of your grade)**
  Mathematics is not a spectator sport! Reading your textbook and watching video examples is typically not enough for you to master the material. As an athlete must spend hours practicing in order to excel in his or her sport, so you must practice your precalculus skills if you wish to do well on exams.

  The online homework system WeBWorK will help you do just that by checking your answers and giving you instantaneous feedback. After reading the material for each lesson, print out the associated WeBWorK assignment and work through the problems on paper. When you are comfortable with your answers (after possibly seeking help), return to WeBWorK and submit them. Don’t worry if you get them wrong the first time. In most cases you will have an unlimited number of attempts on each problem. However, it is not to your advantage to guess at the answer either. If WeBWorK marks one of your answers wrong, go back and check your work or seek assistance using WeBWorK’s Email Instructor button.

- **Solution Write-Up Assignments (10% of your grade)**
  While WeBWorK can check your final answer, it does not check your solution process. In order to do well on the exams, you must not only be able to find the right answer, but express your solution using correct mathematical notation. After each chapter you will be asked to write-up solutions to problems from your textbook. You will then scan or take a picture of your work and upload it to Moodle.

- **Journal Posts (5% of your grade)**
  Several times during the term you will be asked to respond to a journal question. These questions promote the integration of faith and learning by asking you to reflect on the connections between mathematics and spiritual issues. Journal questions are read only by your instructor. The following rubric will be used to evaluate your responses.

<table>
<thead>
<tr>
<th>Response is:</th>
<th>Excellent (5)</th>
<th>Average (3)</th>
<th>Below Average (1)</th>
<th>Unacceptable (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>well thought-out, addressing the question carefully and completely.</td>
<td>reasonable, but does not address all aspects of the question, addresses them carelessly.</td>
<td>minimal, showing little thought and missing many question aspects completely.</td>
<td>off topic or completely missing.</td>
</tr>
</tbody>
</table>
• **Midterm Exam (30% of your grade)**
  The midterm exam covers the material from chapters 1-5 of your text. The exam is administered by a proctor (see part 5 below) and will be taken with pencil and paper. **You may not use a calculator for the midterm exam.** You must show all steps in your solutions. Solutions lacking neatness and/or proper evidence will be discounted at the instructor's discretion.

• **Final Exam (35% of your grade)**
  The final exam is comprehensive, emphasizing the material from the second half of the course, chapters 6-8 and 10. The format of the final is similar to that of the midterm, but you will need a **simple scientific calculator with trigonometric function capabilities.** The rules for showing your work still apply.

**Exams**
All tests and exams in this course are proctored through the School of Distance Education Testing Center. Your proctor will open your exam through Webworks at the start of your scheduled exam session. Please request your exam when prompted in the module(s) indicated prior to the exam. Appointments for proctoring in or online through the Testing Center are set up online at calendly.com/sde-exams/online.

Note that an exam code is never released to the student, and cannot be sent to a proctor who has the same address as the student unless the address is known to be that of a school or mission facility. All students must present photo identification at the start of each exam session.

If you cannot take your exam by the deadline date, email specific reasons and your recovery plan to your instructor before the deadline. Your exam cannot be proctored after the exam deadline without email or phone approval directly from the instructor to the Testing Center (sdeexams@andrews.edu or 269-471-6566). The Testing Center will then work with a local proctor if needed.

No exam is returned to the student. Instructor feedback on exams prior to the final exam will be provided to aid studying for future exams.

For more details on taking exams and how online proctoring works, please see www.andrews.edu/distance/students/exams.html

You may not use your textbook and notes to solve the test problems. Using your own paper, the answers need to be clearly numbered, written and work must be shown. The tests must taken in one setting, within a 180-minute period. The tests may not be repeated, so do not attempt the tests until you have completed the homework assignments and quizzes for that chapter. No exam is returned to the student. Test grades are sent to the student as soon as the exam is graded. Feedback from the instructor for exams will provide information for studying for future exams.

The midterm exam is worth 30% of your grade. You are allowed 180 minutes to complete this exam. The Final exam is worth 35% of your grade. You are allowed 180 minutes to complete this exam.
Schedule with start, midterm, final and completion dates in **RED**.

<table>
<thead>
<tr>
<th>Modules</th>
<th>Lessons</th>
<th>Readings</th>
<th>Assignments</th>
<th>Course Objectives Met</th>
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<tbody>
<tr>
<td>Intro</td>
<td>Introduction &amp; Orientation</td>
<td>Orientation Writing Expectations</td>
<td>Submit: Tell About Me Academic Honesty</td>
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<tr>
<td>1 May 13-May 19</td>
<td>Chapter 1:1-3</td>
<td>1-1: Linear Equations and Applications 1-2: Linear Inequalities 1-3: Absolute Value in Equations and Inequalities</td>
<td>Introduce Yourself Plagiarism Assignment WeBWorK 1-1 WeBWorK 1-2 WeBWorK 1-3</td>
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<td>2</td>
<td>Chapter 1:4-5; 2: 1-2</td>
<td>1-4: Complex Numbers 1-5: Quadratic Equations and Applications 2-1 &amp; 2-2: Cartesian Coordinates &amp; Distance in the Plane</td>
<td>WeBWorK 1-4 WeBWorK 1-5 Journal Question #1 Solution Write-Up Cpt 1 WeBWorK 2-1 &amp; 2-2</td>
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<td>3</td>
<td>Chapter 2:3; 3:1-3</td>
<td>2-3: Equation of a Line 3-1 &amp; 3-2: Functions &amp; Graphing Functions 3-3: Transforming Functions</td>
<td>WeBWorK 2-3 WeBWorK 3-1 &amp; 3-2 WeBWorK 3-3</td>
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<td>4</td>
<td>Chapter 3:4-6</td>
<td>3-4: Quadratic Functions 3-5: Operations on Functions 3-6: Inverse Functions</td>
<td>WeBWorK 3-4 WeBWorK 3-5 WeBWorK 3-6 Solution Write-Up Cpt 2-3</td>
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<td>Chapter 4:1-3</td>
<td>4-1: Polynomial Functions, Division, and Models 4-2: Real Zeros and Polynomial Inequalities 4-3: Complex and Rational Zeros</td>
<td>Journal Question #2 WeBWorK 4-1 WeBWorK 4-2 WeBWorK 4-3</td>
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<td>Chapter 4:4; 5:1-2</td>
<td>4-4: Rational Functions and Inequalities 5-1: Exponential Functions 5-2: Exponential Models</td>
<td>WeBWorK 4-4 Solution Write-Up Cpt 4 WeBWorK 5-1 WeBWorK 5-2</td>
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<td>7</td>
<td>Chapter 5:3-5</td>
<td>5-3: Logarithmic Functions 5-4: Logarithmic Models 5-5: Exponential and Logarithmic Equations</td>
<td>WeBWorK 5-3 WeBWorK 5-4 WeBWorK 5-5 Solution Write-Up Cpt 5</td>
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<tr>
<td>8 June 16-June 20</td>
<td>Chapter 6:1-2</td>
<td>6-1: Angles and Their Measures 6-2: Right Triangle Trigonometry</td>
<td>Journal Question #3 WeBWorK 6-1 WeBWorK 6-2</td>
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<td>9</td>
<td>Chapter 6:3-6</td>
<td>6-3 &amp; 6-4: Trigonometric Functions &amp; Their Properties 6-5: More General Trigonometric Functions 6-6: Inverse Trigonometric Functions</td>
<td>WeBWorK 6-3 &amp; 6-4 WeBWorK 6-5 WeBWorK 6-6 Solution Write-Up Cpt 6</td>
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<tr>
<td>10</td>
<td>Chapter 7:1-3</td>
<td>7-1: Basic Identities and Their Use 7-2: Sum, Difference, and Cofunction Identities 7-3: Double-Angle and Half-Angle Identities</td>
<td>WeBWorK 7-1 WeBWorK 7-2 WeBWorK 7-3</td>
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<td>11</td>
<td>Chapter 7:4-5; 8:1</td>
<td>7-4: Product-Sum and Sum-Product Identities 7-5: Trigonometric Equations 8-1: Law of Sines</td>
<td>WeBWorK 7-4 WeBWorK 7-5 Solution Write-Up Cpt 7 Journal Question #4</td>
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</table>
## Modules

<table>
<thead>
<tr>
<th>Modules</th>
<th>Lessons</th>
<th>Readings</th>
<th>Assignments</th>
<th>Course Objectives Met</th>
</tr>
</thead>
</table>
| 13      | Chapter 8:2-4 | 8-2: Law of Cosines  
8-3: Vectors in the Plane  
8-4: Polar Coordinates and Graphs | WeBWorK 8-1 |                      |
| 14      | Chapter 8:5; 10:1-2 | 8-5: Complex Numbers and DeMoivre's Theorem  
10-1: Systems of Linear Equations  
10-2: Solving Systems with Gauss-Jordan Elimination | WeBWorK 8-5  
Solution Write-Up  
Cpt 8  
WeBWorK 10-1  
WeBWorK 10-2 |                      |
| 15      | Chapter 10:3-4 | 10-3: Matrix Operations  
10-4: Solving Systems of Linear Equations Using Matrix Inverses | WeBWorK 10-3  
WeBWorK 10-4  
Solution Write-Up  
Cpt 10 |                      |
| 16      | July 28-Aug 1 | **FINAL EXAM**  
(Needs to be due by Thursday, August 1, 11:59 PM) | | |

### Completing Assignments
All assignments for this course will be submitted electronically through LearningHub unless otherwise instructed.

### Part 4: Grading Policy

#### Graded Course Activities

<table>
<thead>
<tr>
<th>Percent</th>
<th>Description</th>
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<tr>
<td>20</td>
<td>WeBWorK</td>
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<tr>
<td>10</td>
<td>Solution Write-Ups</td>
</tr>
<tr>
<td>5</td>
<td>Journal Posts</td>
</tr>
<tr>
<td>30</td>
<td>Midterm Exam</td>
</tr>
<tr>
<td>35</td>
<td>Final Exam</td>
</tr>
<tr>
<td>100</td>
<td>Total Percent Possible</td>
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#### Viewing Grades in LearningHub
- Click into the course.
- Click on the **Grades** link in the Settings Box to the left of the main course page.

#### Letter Grade Assignment

<table>
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<tr>
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<th>Percentage</th>
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<tr>
<td>A-</td>
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<tr>
<td>B+</td>
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<td>83-87%</td>
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<tr>
<td>B-</td>
<td>80-82%</td>
</tr>
<tr>
<td>C+</td>
<td>78-79%</td>
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<tr>
<td>C</td>
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<td>70-72%</td>
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<tr>
<td>D</td>
<td>60-69%</td>
</tr>
<tr>
<td>F</td>
<td>0-59%</td>
</tr>
</tbody>
</table>
Part 5: Course Policies

Withdrawal and Incomplete Policies
The current withdrawal policy can be found online at https://www.andrews.edu/distance/students/gradplus/withdrawal.html. The incomplete policy is found online at http://www.andrews.edu/weblmsc/moodle/public/incompletes.html.

Maintain Professional Conduct Both in the Classroom and Online
The classroom is a professional environment where academic debate and learning take place. Your instructor will make every effort to make this environment safe for you to share your opinions, ideas, and beliefs. In return, you are expected to respect the opinions, ideas, and beliefs of other students—both in the face-to-face classroom and online communication. Students have the right and privilege to learn in the class, free from harassment and disruption.

Academic Accommodations
Students who require accommodations may request an academic adjustment as follows:
1. Read the Andrews University Disability Accommodation information at https://www.andrews.edu/services/sscenter/disability/.
2. Download and fill in the disability form at http://www.andrews.edu/services/sscenter/disability/accommodationsreqform.pdf. Preferably type answers. To save a digital copy, 1) print to file and save or 2) print and scan. Email the completed form and disability documentation (if any) to success@andrews.edu or fax it to (269) 471-8407.
3. Email sdestudents@andrews.edu to inform the School of Distance Education that a disability has been reported to Student Success.

Commitment to Integrity
As a student in this course, and at the university, you are expected to maintain high degrees of professionalism, commitment to active learning, participation in this course, and integrity in your behavior in and out of this online classroom.

Commit to Excellence
You deserve a standing ovation based on your decision to enroll in, and effectively complete this course. Along with your pledge of “commitment to Integrity” you are expected to adhere to a “commitment to excellence.” Andrews University has established high academic standards that will truly enhance your writing and communication skills across the disciplines and in diverse milieu with many discourse communities in the workplace.

Honesty
Using the work of another student or allowing work to be used by another student jeopardizes not only the teacher-student relationship but also the student’s academic standing. Lessons may be discussed with other students, tutors may help to guide a student’s work, and textbooks, encyclopedias and other resource materials may be used for additional assistance, but the actual response must be the student’s own work.

Exams must be completed in the presence of an approved supervisor without the assistance of books, notes, devices or outside help unless otherwise specified in the exam directions. The student should have no access to the exam either before or after it is taken. A student who gives information to another student to be used in a dishonest way is equally guilty of dishonesty.
Any violation of this policy will be taken before the Higher Education Academic and Curriculum Committee for appropriate punitive action.

**Part 6: Bibliography**

Journal questions were developed in conjunction with the following sources.