



Sample Syllabus 2 Contents

Curricular Requirements	ii
AP [®] Calculus BC Syllabus	1
Course Overview	1
COURSE PLANNER	1
REVIEW	1
UNIT 1	1
UNIT 2	2
UNIT 3	3
UNIT 4	4
UNIT 5	5
UNIT 6	6
UNIT 7	6
UNIT 8	7
UNIT 9	8
UNIT 10	8
UNIT 11	9
UNIT 12	9
EXAM	10
REVIEW	10
Teaching Strategies	11
Student Evaluation and Assessment	11

Curricular Requirements

- CR1a The course is structured around the enduring understandings within Big Idea 1: Limits.
- See page 2
- CR1b The course is structured around the enduring understandings within Big Idea 2: Derivatives.
- See pages 3, 4
- CR1c The course is structured around the enduring understandings within Big Idea 3: Integrals and the Fundamental Theorem of Calculus.
- See pages 5, 6
- CR1d The course is structured around the enduring understandings within Big Idea 4: Series.
- See page 9
- CR2a The course provides opportunities for students to reason with definitions and theorems.
- See page 3
- CR2b The course provides opportunities for students to connect concepts and processes.
- See page 2
- CR2c The course provides opportunities for students to implement algebraic/computational processes.
- See page 2
- CR2d The course provides opportunities for students to engage with graphical, numerical, analytical, and verbal representations and demonstrate connections among them.
- See pages 2, 3, 7, 10
- CR2e The course provides opportunities for students to build notational fluency.
- See page 6
- CR2f The course provides opportunities for students to communicate mathematical ideas in words, both orally and in writing.
- See pages 2, 4
- CR3a Students have access to graphing calculators.
- See page 1
- CR3b Students have opportunities to use calculators to solve problems.
- See page 2
- CR3c Students have opportunities to use a graphing calculator to explore and interpret calculus concepts.
- See pages 4, 6
- CR4 Students and teachers have access to a college-level calculus textbook.
- See page 1

AP® Calculus BC Syllabus

Course Overview:

The development and subsequent use of calculus to understand and to represent many aspects of the world around us has opened opportunities and encouraged advancements beyond the comprehension of those who first defined its use. My primary objectives in the classroom are to inspire in students an appreciation of the power and beauty of calculus; to enable them to understand and to apply the big ideas of limits, derivatives, integrals, and series; and to give them a strong foundation for future study. This foundation will emphasize the development of skills and the communication of concepts. The course is a double blocked course for students with no prior calculus knowledge. It will cover—at a minimum—the structural components of the curriculum framework from Calculus BC as defined by the College Board.

Primary Textbook:

Foerster, Paul A. *Calculus: Concepts and Applications*. 2nd ed. Oakland, CA: Key Curriculum Press, 2005.

[CR4]

[CR4] — Students and teachers have access to a college-level calculus textbook.

Additional Resources:

Boelkins, Matt. *Active Calculus*. Online Textbook of Grand Valley State University, 2013.

Finney, Ross L., Franklin D. Demana, Bert K. Waits, and Daniel Kennedy. *Calculus—Graphical, Numerical, Algebraic*. 4th ed. Upper Saddle River, NJ: Prentice Hall, 2012.

Goldstein, Benjamin. *Taylor Polynomials and Infinite Series, Version 1.4*, 2013.

Curriculum Modules and Special Focus Materials from the College Board.

Additional resources from AP workshops, NMSI (National Math and Science Initiative) workshops, or from personal development.

Technology:

Each student will provide his/her own calculator. The student may use a TI-83, TI-84, TI-84+, TI-89, TI-89 Titanium, or TI-Nspire graphing calculator. As an instructor, I will use the TI Smartview (TI-84+ Emulator Software) and the TI-89 Titanium for demonstrations. **[CR3a]**

[CR3a] — Students have access to graphing calculators.

COURSE PLANNER

REVIEW

Review: Self-developed

Daily 100-minute classes: 9 days

UNIT 1

Chapter 1: Limits, Derivatives, and Integrals

Big Ideas: Limits, Derivatives, and Integrals

Daily 100-minute classes: 6 days

Sections:

- 1.1 The Concept of Instantaneous Rate (Independent/Group Discovery)
- 1.2 Rate of Change by Equation, Graph, or Table
- 1.3 One Type of Integral of a Function
- 1.4 Definite Integrals by Trapezoids, from Equations and Data

Activities:

Which Way Did He Go?: Students walk distance/time and velocity/time graphs (often piecewise!) with a partner to explore concepts of negative velocity, constant velocity, acceleration, position, distance, and displacement. Students then discuss their findings in small groups. They are encouraged to look for connections between rate of change and accumulation. **[CR2b]** **[CR2f: oral]**

[CR2b] — The course provides opportunities for students to connect concepts and processes.

[CR2f] — The course provides opportunities for students to communicate mathematical ideas in words, both orally and in writing.

UNIT 2

Chapter 2: Properties of Limits **[CR1a: limits]**

Big Idea: Limits

Daily 100-minute classes: 8 days

Sections:

- 2.1 Numerical Approach to the Definition of Limit (Independent Discovery/Group Collaboration in which students use their calculators to generate tables of values to estimate limits) **[CR2d: numerical]** **[CR3b]**
- 2.2 Graphical and Algebraic Approaches to the Definition of Limit
- 2.3 The Limit Theorems Supplemental: Limits that Don't Exist
- Supplemental Worksheet: Solving Limits Algebraically and Graphically, including Important Trig Limits and the Sandwich Theorem **[CR2d: graphical, analytical]** **[CR2c]**
- 2.4 Continuity and Discontinuity **[CR1a: continuity]**
- 2.5 Limits Involving Infinity
- 2.6 The Intermediate Value Theorem and Its Consequences
- Supplemental Worksheets: $\epsilon - \delta$ Worksheet; Limits that Don't Exist; Solving Limits Algebraically; Special Trig Limits; Limits at Infinity; Intermediate Value Theorem; Analyzing Limits Graphically; and More Practice with Limits.

[CR1a] — The course is structured around the enduring understandings within Big Idea 1: Limits.

[CR2d] — The course provides opportunities for students to engage with graphical, numerical, analytical, and verbal representations and demonstrate connections among them.

[CR3b] — Students have opportunities to use calculators to solve problems.

[CR2c] — The course provides opportunities for students to implement algebraic/computational processes.

Activities:

Calculus Concept Lab: Students explore the concept problems on pp. 27-28 of the textbook. The problems lay groundwork for the following future concepts: exact value of a derivative, tangent to a graph, and formal definition of a limit (these last two use the calculator and Geometer's Sketchpad).

Intermediate Value Theorem (IVT) Lab: Students decide if the IVT does or does not apply to a function given in a variety of forms and then discuss their answers with a partner. **[CR2a]**

[CR2a] — The course provides opportunities for students to reason with definitions and theorems.

UNIT 3

Chapter 3: Derivatives, Antiderivatives, and Indefinite Integrals **[CR1b: derivatives]**

Big Ideas: Limits, Derivatives, and Integrals

Daily 100-minute classes: 10 days

Sections:

3.1 Graphical Interpretation of Derivative (Independent Discovery/Group Collaboration)

3.2 Difference Quotients and One Definition of Derivative (Supplement with Normal Lines)

3.3 Derivative Functions, Numerically and Graphically

3.4 Derivative of the Power Function and Another Definition

3.5 Displacement, Velocity, and Acceleration (Supplement with Impulse/Jerk)

Supplemental: Examining Derivatives of Parametric, Polar, and Vector Equations (Algebraic, Numerical, and Graphical Observations)

3.6 Introduction to Sine, Cosine, and Composite Functions (Graphical and Numerical Discovery)

3.7 Derivatives of Composite Functions—The Chain Rule

3.8 Proof and Application of Sine and Cosine Derivatives

3.9 Exponential and Logarithmic Functions Supplemental: Graphing Derivatives from Data (FDWK 3.1)

Supplemental: Applications of Derivatives—Economics, Harmonic Motion (FDWK 3.4/3.5)

[CR1b] — The course is structured around the enduring understandings within Big Idea 2: Derivatives.

Activities:

Explorations: In small groups, students explore where conjectures can be made and concepts can be connected; then class discussions occur to verify or modify solutions. (Foerster 3-2A, 3-3B, 3-5A, and 3-7A.)

Different . . . and Yet, The Same: Working in groups, students are given a page with formulas for four functions; they will graph each function and its derivative on a calculator for accuracy. Using the calculator and colored dry-erase pens, students draw the graphs on a transparency with a coordinate system printed on it. When done, each group will place corresponding graphs on top of each other. The graphs of the functions will be different, but the graphs of the derivatives should lie on top of each other. This opens the discussion about constants and derivatives/antiderivatives.

New York Times Viewpoint Activity: Students examine the employment rate from the viewpoint of a Democrat (derivative) and a Republican (integral) during the 2012 presidential election, allowing them to connect the concepts of derivative and integral and distinguish between the two. **[CR2d: verbal]**

Short Essay Assignment: In a formal writing assignment, students are asked to explain in a short essay (using proper grammar and well-written sentences) to a (real or imagined) younger sibling how the derivative written as the limit of the difference quotient is equal to the slope of the tangent line to a curve at a given point. **[CR2f: written]**

[CR2d] — The course provides opportunities for students to engage with graphical, numerical, analytical, and verbal representations and demonstrate connections among them.

[CR2f] — The course provides opportunities for students to communicate mathematical ideas in words, both orally and in writing.

UNIT 4

Chapter 4: Products, Quotients, and Parametric Functions

Big Ideas: Limits and Derivatives

Daily 100-minute classes: 19 days

Sections:

4.1 Combinations of Two Functions (Independent/Group Discovery)

4.2 Derivative of a Product of Two Functions

4.3 Derivative of a Quotient of Two Functions

Supplemental: Derivatives of Inverse Functions

4.4 Derivatives of the Other Trigonometric Functions

4.5 Derivatives of Inverse Trigonometric Functions

4.6 Differentiability and Continuity including the Mean Value Theorem (Verbal, Algebraic, Numerical, and Graphical Observations) (FDWK5.2) **[CR1b: Mean Value Theorem]**

Supplemental: Using Derivatives to Solve Optimization Problems

4.7 Derivatives of Parametric Functions (Supplements-Derivatives of Polar and Vector Functions)

4.8 Graphs and Derivatives of Implicit Relations

4.9 Related Rates

Supplemental: Business applications of Derivatives (FDWK 5.4)

Supplemental: Examining f , f' , and f'' graphs (FDWK 5.3)

Supplemental: Extrema—Relative and Global

[CR1b] — The course is structured around the enduring understandings within Big Idea 2: Derivatives.

Activities:

Explorations: In small groups, students explore where conjectures can be made and concepts can be connected; then class discussions occur to verify or modify solutions. (Foerster 4-2a and 4-3a.)

Discovering Inverse Functions: Students use a calculator and a designed worksheet to help discover the derivative of an inverse function. Sections are taught inductively. **[CR3c]**

Differentiation Rules: Small groups of students receive a list of functions to differentiate on the calculator (TI-89). Analysis of patterns in answers and discussion of possible reasons for patterns lead students to discover these differentiation rules. **[CR3c]**

Calculus Concept Lab-Newton's Method: Students compare the values of zeros found using Newton's method with those using a calculator. (p. 182-183)

ID Me: Using complicated graphs of f , f' , and f'' , students must identify which is the function and its first and second derivatives, and describe the critical points and concavity that helped them decide.

[CR3c] — Students have opportunities to use a graphing calculator to explore and interpret calculus concepts.

UNIT 5

Chapter 5: Definite and Indefinite Integrals **[CR1c: integrals]**

Big Ideas: Derivatives, Integrals, and the Fundamental Theorem of Calculus (Part 1)

Daily 100-minute classes: 18 days

Sections:

Supplemental: Local Linearity Discovery Activity (Independent Discovery/Group Collaboration)

5.2 Linear Approximations and Differentials

5.3 Formal Definition of Antiderivative and Indefinite Integral

5.4 Riemann Sums and the Definition of Definite Integral

Supplemental: Special Riemann Sums

5.5 The Mean Value Theorem and Rolle's Theorem

5.6 The Fundamental Theorem of Calculus (1st FTC) **[CR1c: Fundamental Theorem of Calculus part 1]**

Supplemental: U-Substitution

Supplemental: Finding Derivatives and Integrals Numerically

5.7 Definite Integral Properties and Practice

5.8 Definite Integrals Applied to Area and Other Problems

5.9 Volume of a Solid by Plane Slicing

5.10 Definite Integrals Numerically by Graphing and by Simpson's Rule

Supplemental: Connecting Differential and Integral Calculus (FDWK 6.3)

Supplemental: Absolute/Relative/Percentage Change (FDWK 5.5)

[CR1c] — The course is structured around the enduring understandings within Big Idea 3: Integrals and the Fundamental Theorem of Calculus.

Activities:

What Do You See?: Hidden pictures from Highlights® magazine are shown to spark discussion about what is seen in a small window compared to viewing the whole picture. A graph is then displayed in a very small window (unknown to the students) on the TI Smartview. Students are asked to guess the equation of the graph. Although they appear to be correct, the window is then enlarged to reveal the function and the tangent line. This leads to a detailed discussion of local linearity.

A Twist of Lemon: Students are introduced to volumes of revolution. They draw a curve around half the lemon, measure points on the curve, and find a regression equation for the function representing the curve. Next, they measure the volume of the lemon using water displacement and then cut the lemon in six equal slices. They measure the radius and height of each slice to accumulate volume using the "cylinders" of lemon and measure the function height at six equal subintervals to estimate the accumulated volume of the cylinders with those. They

then write the limit as n goes to infinity of a general right-hand Riemann sum with n subintervals for the volume of the lemon using the regression equation as the function, recognize this limit as a definite integral, and evaluate the definite integral exactly using the Fundamental Theorem of Calculus. **[CR2e]**

Calculus Concept Lab-Proof by Induction: Students explore how to find the sums of the first n perfect squares and of the first n non-negative perfect cubes as they appear in Riemann sums when estimating areas under quadratic and cubic functions. Students then compare the values of the sums to the values of the definite integrals and attempt to prove that their formulas for the sums are correct using induction. (p. 264)

[CR2e] — The course provides opportunities for students to build notational fluency.

UNIT 6

Chapter 6: The Calculus of Exponential and Logarithmic Functions

Big Ideas: Limits, Derivatives, Integrals, and the Fundamental Theorem of Calculus

Daily 100-minute classes: 7 days; End of 1st Semester

Sections:

6.1 Integral of the Reciprocal Function: A Population Growth Problem (Independent/Group Discovery)

6.2 Antiderivatives of the Reciprocal Function and Another Form of the Fundamental Theorem (2nd FTC)

[CR1c: Fundamental Theorem of Calculus part 2]

6.3 The Uniqueness Theorem and Properties of Logarithmic Functions Differentiation

6.4 The Number e , Exponential Functions, and Logarithmic Differentiation

6.5 Limits of Indeterminate Forms: L'Hospital's Rule

Supplemental: Logarithmic Differentiation

Supplemental: L'Hospital's Rule (Discovery Activity)

6.6 Derivative and Integral Practice for Transcendental Functions

Supplemental: The Average Value of a Function (Graphically and Algebraically)

[CR1c] — The course is structured around the enduring understandings within Big Idea 3: Integrals and the Fundamental Theorem of Calculus.

Activities:

Explorations: In small groups, students explore where conjectures can be made and concepts can be connected; then class discussions occur to verify or modify solutions. (Foerster 6-4a.)

Discover Improper Integrals: Using a calculator, students discover improper integrals. This is an activity where students use a calculator and a worksheet designed to help students discover the interesting—and sometimes tricky—aspects of evaluating improper integrals . . . if they can be evaluated, that is! **[CR3c]**

[CR3c] — Students have opportunities to use a graphing calculator to explore and interpret calculus concepts.

UNIT 7

Chapter 7: The Calculus of Growth and Decay

Big Ideas: Derivatives, Integrals, and the Fundamental Theorem of Calculus

Daily 100-minute classes: 8 days

Sections

7.1 Direct Proportion Property of Exponential Functions (Independent Discovery/Group Collaboration)

7.2 Exponential Growth and Decay

7.3 Other Differential Equations for Real-World Applications

7.4 Graphical Solutions of Differential Equations by Using Slope Fields

7.5 Numerical Solutions of Differential Equations by Using Euler's Method

Supplemental: Partial Fractions and Improper Integrals

Supplemental: Comparing Integration Techniques

7.6 The Logistic Function and Predator-Prey Population Problems

Supplemental: Emphasizing Rates Proportional to the Amount Present, to the Amount Not Present, and to the Amount Present and Not Present

Activities:

Exploration: In small groups, students explore where conjectures can be made and concepts can be connected; then class discussions occur to verify or modify solutions. (Foerster 7-4a and 7-4b.)

Slope Field Matching: Students work with partners to group 10 slope field graphs with the respective differential equations and verbal descriptions. This activity allows students to notice characteristics of slope fields and to connect those characteristics with the equations and descriptions. **[CR2d: connection between analytical and graphical]**

[CR2d] — The course provides opportunities for students to engage with graphical, numerical, analytical, and verbal representations and demonstrate connections among them.

UNIT 8

Chapter 8: The Calculus of Plane and Solid Figures

Big Ideas: Derivatives, Integrals, and the Fundamental Theorem of Calculus

Daily 100-minute classes: 11 days

Sections:

8.1 Cubic Functions and Their Derivatives (Independent Discovery/ Group Collaboration)

8.2 Critical Points and Points of Inflection

8.3 Maxima and Minima in Plane and Solid Figures

8.4 Volume of a Solid of Revolution by Cylindrical Shells

8.5 Length of a Plane Curve: Arc Length

Supplemental: Finding Arc Length of a Function with a Vertical Tangent, Corner, or Cusp (FDWK 8.4)

8.6 Area of a Surface of Revolution

8.7 Lengths and Areas for Polar Coordinates

Activities:

Group Projects (Applying Maxima and Minima)

Hat Draw Project: Students draw from a hat to determine their project assignment from one of the following: designing a suitcase, folding paper, designing a tank, or designing a tunnel.

Exploration: In small groups, students explore where conjectures can be made and concepts can be connected; then class discussions occur to verify or modify solutions. (Foerster 8-7a.)

UNIT 9

Chapter 9: Algebraic Calculus Techniques for Elementary Functions

Big Ideas: Derivatives, Integrals, and the Fundamental Theorem of Calculus

Daily 100-minute classes: 9 days

Sections:

- 9.1 Introduction to the Integral of a Product of Two Functions (Individual Discovery/Group Collaboration)
- 9.2 Integration by Parts—A Way to Integrate Products
- 9.3 Rapid Repeated Integration by Parts
- 9.4 Reduction Formulas and Computer Algebra Systems
- 9.5 Integrating Special Powers of Trigonometric Functions
- 9.6 Integration by Trigonometric Substitution
- 9.7 Integration of Rational Functions by Partial Fractions
- 9.8 Integrals of the Inverse Trigonometric Functions
- 9.10 Improper Integrals
- 9.11 Miscellaneous Integrals and Derivatives

Activities:

Exploration: In small groups, students explore where conjectures can be made and concepts can be connected; then class discussions occur to verify or modify solutions. (Foerster 9-4a, 9-5a, and 9-5b.)

UNIT 10

Chapter 10: The Calculus of Motion

Big Ideas: Derivatives, Integrals, and the Fundamental Theorem of Calculus

Daily 100-minute classes: 8 days

Sections:

- 10.1 Introduction to Distance and Displacement for Motion Along a Line (Independent Discovery/Group Collaboration)
- 10.2 Distance, Displacement, and Acceleration for Linear Motion
- 10.3 Average Value Problems in Motion and Elsewhere
- 10.4 Minimal Path Problems
- 10.5 Maximum and Minimum Problems in Motion and Elsewhere
- Supplemental: Parametric Equations and Vectors
- 10.6 Vector Functions for Motion in a Plane

Supplemental: Parametric, Polar, Vector Review

Activities:

Driving Project: In pairs, students drive a predetermined route and record distance, speed, and time in a table. They then create distance versus time and speed versus time graphs, and use the information to answer questions and draw conclusions related to distance, displacement, and acceleration.

UNIT 11

Chapter 11: The Calculus of Variable Factor Products

Big Ideas: Integrals

Daily 100-minute classes: 8 days

Sections:

- 11.1 Review of Work—Force Times Displacement (Independent Discovery/ Group Collaboration)
- 11.2 Work Done by a Variable Force
- 11.3 Mass of a Variable-Density Object
- 11.4 Moments, Centroids, and Center of Mass
- 11.5 Force Exerted by a Variable Pressure-Center of Pressure

UNIT 12

Supplement: The Calculus of Functions Defined by Power Series (by Goldstein) [**CR1d: power series**]

Big Idea: Series

Daily 100-minute classes: 16 days

Sections:

1. Review of Sequences and Series [**CR1d: series**]
2. An Introduction to Taylor Polynomials [**CR1d: Taylor polynomials**]
3. A Systematic Approach to Taylor Polynomials
4. Lagrange Remainder
5. Power Series and the Ratio Test
6. Positive-Term Series
7. Varying-Sign Series (supplemented with the Root Test)
8. Conditional Convergence
9. Taylor Series

[**CR1d**] — The course is structured around the enduring understandings within Big Idea 4: Series.

Activities:

Calculus Concept Lab: Students explore concept problem C2 on p. 647 of the textbook. It uses a Maclaurin series to calculate the value of π to fifty decimal places.

EXAM

Daily 100-minute classes: 2 days

Exam:

Full-length Practice Exam

Assessments:

Exams, Quizzes, Worksheets, Projects, Assignments, etc.

Released AP Calculus BC Exam

REVIEW

Big Ideas: Limits, Derivatives, Integrals, the Fundamental Theorem of Calculus, and Series

Daily 100-minute classes: 11 days

Enduring Understandings/Sections/Objectives:

Identify areas of weakness from the practice exam

Review for the AP exam emphasizing the Mathematical Practices for AP Calculus

Assessments:

Exams, Quizzes, Worksheets, Projects, Assignments, etc.

Supplemental Review:

Worksheets – A Sampling (change based on student needs): Newton’s, Euler’s, and Simpson’s methods; Functions Defined by Integrals WS#1-3; Tabular Reasoning; Identifying Extrema; Differential Equations; Series Review 1 and 2; and Practice Multiple Choice and Practice Free Response.

Activities:

Volumes of Sweetness: Students use their calculators to graph a function, then visually rotate it around the appropriate axis. They must integrate to find the volume of the shape and decide what type of candy it represents (e.g., kisses, lemon drops, gum drops, peanut butter cups, or Hershey’s nuggets, etc. can be used to find volumes of cross sections). When each problem is solved correctly, each student may receive his/her portion of that type of candy.

Graphing Puzzle – f , f' , f'' : Students work in small groups and review identifying graphs. **[CR2d: graphical]** Each group receives an envelope containing 16 function graphs, 16 function descriptions, 16 derivative graphs, and 16 derivative descriptions in words. **[CR2d: verbal]** The objective is to match the description of each function with the graph of the function and the description of each derivative with the graph of the derivative. **[CR2d: connection between verbal and graphical]** Then, they are to match the function with its derivative and sketch the 2nd derivative. This activity provides lots of animated discussion regarding relative extrema, concavity, and points of inflection.

[CR2d] — The course provides opportunities for students to engage with graphical, numerical, analytical, and verbal representations and demonstrate connections among them.

Teaching Strategies:

Throughout this course, the Mathematical Practices for AP Calculus will be emphasized. Students are expected to understand definitions and theorems and use them in reasoning; to connect concepts throughout the course; to precisely use algebraic/computational processes in the solution of problems; to connect multiple representations of functions; to build fluency in the use of correct notation; and to effectively communicate orally and in well-written sentences, comparisons, analyses, justifications, and evaluations to ensure deeper understanding, greater retention, and better application. Various uses of technology and assessment will support these practices.

Throughout the course, students work together to discover new concepts as well as to reinforce old ones. Students are often asked to work problems on the board and to explain processes. This allows both the student and the teacher to determine strengths and weaknesses in understanding.

In preparation for the AP exam, both multiple choice and free response questions are examined throughout the year. Generally, the students will work on problems in groups, as discussion promotes deeper understanding and often spurs new thoughts.

Student Evaluation and Assessment:

Major exams, which always include released AP problems, are divided into two sections—calculator and no calculator—and are designed to ensure the relationships of concepts within the big ideas as well as connecting big ideas to each other. All major exams may be corrected, and partial credit received, in my room with special attention to explanations and proper notation. Major quizzes are more specialized to connect big ideas with enduring understandings and learning objectives. Homework and daily quizzes are often more narrowly focused on learning objectives and essential knowledge, but “connection days” (i.e., practice that reinforces connections), discussions, and activities reinforce the unity of seemingly “disconnected” concepts.

Grades are computed each nine weeks as follows: homework and daily quizzes (20 percent), major quizzes (30 percent), and tests (50 percent). Projects will fit one of these categories based on complexity. Semester averages include two nine-week periods (42 percent each) and the midterm/final exam (16 percent). The mean of the two semester averages is the student’s final grade.