## MT 130A COLLEGE ALGEBRA

***DONNELLY COLLEGE***

Term

Day/Time

Room

3 credit hours

**INSTRUCTOR INFORMATION**

Name:

Office:

Office hours:

Telephone:

E-mail address:

**COURSE DESCRIPTION:**

This course focuses on the study of functions and their graphs. Students will analyze and graph functions, including linear, quadratic, absolute value, and general polynomial, exponential and logarithmic functions. Also included are systems of linear equations and inequalities, and the theory of higher degree equations**.**

**PREREQUISITES:**

C or better in MT 103 or its equivalent or by an appropriate score on the placement test.

**REQUIRED TEXTBOOK & SUPPLIES:**

* Text – College Algebra Building Skills and Modelling Situations by Charles P. McKeague, Katherine Yoshiwara & Denny Burzynski. ISBN: 9781936368167
* Graphing calculator is required. They are available for rental for $20 (you can ask your professor about the rental form).
* The student must provide their calculator. Cell phone calculators are **NOT** allowed.

**PHILOSOPHY OF GENERAL EDUCATION:**

Donnelly College has consistently maintained a strong commitment to the liberal arts and sciences as a foundation for a complete education. The faculty strongly believes that the liberal arts and sciences provide the context through which students can engage with the larger questions about students’ place in the world and their pursuit of truth. Therefore, the College’s general education requirements are designed to ensure that liberal arts and sciences graduates develop a breadth of content knowledge and the skills and abilities which will enable them to become educated participants in a diverse global community.

**DONNELLY COLLEGE LEARNING OUTCOMES:**

1. **Communication Skills:** Students will communicate effectively in writing and speaking.
2. **Technology and Information Literacy Skills:** Students will demonstrate proficiency in information literacy skills.
3. **Symbolic Problem Solving:** Students will demonstrate competency in qualitative and quantitative problem-solving.
4. **Analytical Thinking:** Students will employ reflective thinking to evaluate diverse ideas in the search for truth.
5. **Personal and Interpersonal Skills:** Students will develop an understanding across cultural differences locally, nationally, and internationally.
6. **Academic Inquiry:** Students will engage independently and effectively in lifelong learning.
7. **Values:** Students will demonstrate moral and ethical behavior in keeping with our Catholic identity.

**LIBERAL ARTS AND SCIENCES PROGRAM LEARNING OUTCOMES:**

In addition to the general education learning outcomes – communication skills, technology, and information literacy skills, symbolic problem solving, analytical thinking, personal and interpersonal skills, academic inquiry, and values – upon successful completion of the Associate of Arts in Liberal Arts degree, the graduate should be able to demonstrate:

1. Proficiency and creativity in written and verbal communication.
2. Effective use of current technology in support of academic work.
3. Proficient use of qualitative and quantitative methods in problem-solving.
4. Critical and Analytic thinking across a range of disciplines.
5. A commitment to ethics and integrity in academic and professional relationships, within the community and the environment.
6. a. The ability to conduct research using sources, strategies, and approaches across disciplines. (AA)
7. b. Use of the scientific method. (AS)

**STUDENT LEARNING OUTCOMES:**

**Upon successful completion of this course, the student should be able to:**

* 1. Analyze functions and their graphs.
  2. Sketch the graphs of functions, including constant, linear, and piecewise-defined, absolute value, square root, and polynomial, rational, exponential, and logarithmic.
  3. Solve equations including polynomial, exponential, and logarithmic equations.
  4. Solve systems of equations and systems of linear inequalities.
  5. Create mathematical models to solve application problems and make predictions**.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Donnelly College**  **Learning Outcomes** | **Program Learning Outcomes** | **Student Learning Outcomes** | **Application and Assessment** |
| Students will communicate effectively in speaking and writing. | Students will demonstrate. Proficiency and creativity in written and verbal communication. | Students will have the ability to create Mathematical models to solve application problems and make predictions. | An average class grade of 70% or more on an assignment. |
| Students will demonstrate proficiency in information literacy skills. | Students will demonstrate effective use of current technology in support of academic work | Student will have the ability to Analyze functions and their graphs. |  |
| Students will demonstrate competency in qualitative and quantitative problem-solving. | Students will demonstrate proficient use of qualitative and quantitative methods in problem-solving. | Students will have the ability to analyze functions and their graphs.  Students will have the ability to sketch the graphs of functions, including constant, linear, and piecewise-defined, absolute value, square root, and polynomial, rational, exponential, and logarithmic.  Students will have the ability to solve equations including polynomial, exponential, and logarithmic equations.  Students will have the ability to solve systems of equations and systems of linear inequalities. |  |
| Students will employ reflective thinking to evaluate diverse ideas in the search for truth. | Students will demonstrate critical and analytic thinking across a range of disciplines |  |  |
| Students will develop an understanding across cultural differences locally, nationally, and internationally. | Students will demonstrate a commitment to ethics and integrity in academic and professional relationships, within the community and the environment |  |  |
| Students will engage independently and effectively in lifelong learning. | 6b. Use of the scientific method | Students will have the ability to create Mathematical models to solve application problems and make predictions. |  |
| Students will demonstrate moral and ethical behavior in keeping with our Catholic identity. |  |  |  |

**COURSE REQUIREMENTS:**

|  |  |
| --- | --- |
| **Item** | **Percentage of Total Grade** |
| Homework (100pts) | 14.3% |
| Tests (5 x 100pts) | 71.4% |
| Final Exam (1 x 100pts) | 14.3% |
| **Total** | **100.0%** |

***Homework***: Each section covered will have homework assigned. The assigned homework problems are posted in Canvas and will be due every Tuesdays at the beginning of class. Note that the total homework points are equivalent to points on one exam.

***Tests:*** There will be a total of *5* tests. You may use one-half sheet of notes when testing. The notes must be turned in with the test.

***Extra Credit:*** Extra credit worth 5points will be awarded.

***Final Exam:*** The final exam is comprehensive.

***Make-up Tests***: You may make up ***ONE*** test. You must have a valid reason (“I’m not ready” is NOT a valid reason.) If you do not provide prior notice, you must provide documentation (doctor’s note, etc.) as to why you could not take the test. Unless there are extenuating circumstances, all tests must be made up within one week of the scheduled test time. It is up to the student to schedule the test. A make-up test can only be scheduled ***ONCE.***

***Retests:*** There are no retests.

***How to Succeed:*** You are expected to do as many problems as is necessary in order for you to understand the material. Begin by working the odd-numbered problems. The answers to these problems may be found at the end of the text. If you do not remember or understand how to work these problems, you should seek assistance from the tutoring center or ask the instructor. The **Academic Support Center is in Room 201 on the Second Floor**. Tutoring is provided free of charge. Contact the Academic Support Center for more details. You may also try websites such as [www.mathtv.com](http://www.mathtv.com/), [www.khanacademy.org](http://www.khanacademy.org) or [www.purplemath.com](http://www.purplemath.com).

**Additional Assistance**:

If you have questions about using Canvas, check the Online Student Guide available at <https://community.canvaslms.com/docs/DOC-10701-canvas-student-guide-table-of-contents>

For any technical problems, call the assistance line at 1-855-593-5537.  This line is available 24/7.

**CANVAS:** All course materials, grades, and communication with the instructor will be conducted in the Canvas online learning platform. Students are expected to check their accounts daily.

Note: All communications regarding this course will be made via your Donnelly College email account.

**RUBRIC:** The following rubric will be used to evaluate individual problems.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **100% of assigned points** | **75% of assigned points** | **50% of assigned points** | **25% of assigned points** |
| **Interpretation**  *Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)* | Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. *For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.* | Provides accurate explanations of information presented in mathematical forms. *For instance, accurately explains the trend data shown in a graph.* | Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. *For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.* | Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means.  *For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.* |
| **Representation**  *Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)* | Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding. | Competently converts relevant information into an appropriate and desired mathematical portrayal. | Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate. | Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate. |
| **Calculation** | Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.) | Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. | Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem. | Calculations are attempted but are both unsuccessful and are not comprehensive. |
| **Application / Analysis**  *Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis* | Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work. |  | Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work. | Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work. |
| **Assumptions**  *Ability to make and evaluate important assumptions in estimation, modeling, and data analysis* | Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions. | Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate. | Explicitly describes assumptions. | Attempts to describe assumptions. |
| **Communication**  *Expressing quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized)* | Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality. | Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven. | Uses quantitative information, but does not effectively connect it to the argument or purpose of the work. | Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.) |

**GRADING POLICY:** Grades are awarded as follows:

|  |  |
| --- | --- |
| **Item** | **Points** |
| Homework (100pts) | 100 |
| Tests (5 x 100pts) | 500 |
| Final Exam (1 x 100pts) | 100 |
| Total | 700 |

**CALCULATOR POLICY:** Students wishing to use a calculator must provide their own. Cell phones with calculator capabilities may NOT be used on tests. Calculators may NOT be shared on tests.

**CELL PHONE POLICY**: Cell phones should be turned off (or placed on vibrate) and should be kept in your book bag or on the floor (not on the desk or in your lap) during class.

**GRADING SCALE:** Letter grades will be assigned as follows:

|  |  |  |
| --- | --- | --- |
| **Letter Grade** | **Point Range** | **Percentage Range** |
| A | 630 – 700 pts | 90-100% |
| B | 560 – 629 pts | 80-89% |
| C | 490 – 559 pts | 70-79% |
| D | 420 – 489 pts | 60-69% |
| F | 0 – 419 pts | Below 60% |

**ACADEMIC INTEGRITY:** “…Academic integrity is to be maintained at all times to ensure genuine educational growth. Cheating and plagiarism in all forms, therefore, will be subject to disciplinary action. Serious infractions will be reviewed by an ad hoc committee, appointed by the appropriate dean. Appropriate sanctions will be imposed.”

**PLAGIARISM:** Plagiarism-the appropriation or imitation of the language or ideas of another person and presenting them as one’s original work – sometimes occurs through carelessness or ignorance. Students who are uncertain about proper documentation of sources should consult their instructors.

**ACCOMMODATIONS:** In compliance with the Americans with Disabilities Act, Donnelly College will make every attempt to provide equal access for persons with disabilities. Students in need of accommodations must request them in writing from the Vice President of Academic Affairs.

**CIVILITY & DECORUM:** As noted in its Code of Conduct, Donnelly College is committed to maintaining an overall atmosphere of civility and respect. Civility and decorum both inside and outside the classroom are fundamental foundations of the values at Donnelly College. Classroom discussions and interactions outside the classroom will at all times be focused on the learning process and should always be respectful of both students and faculty. In open discussions of ideas and issues, disagreements should focus on ideas and facts. Name calling, and assaults (either in person or online) will not be tolerated. Should any problems occur, the instructor should be notified immediately. Those who do not comply with civility and decorum requirements may be subject to a grade reduction and other sanctions up to and including dismissal from Donnelly College.

**ATTENDANCE POLICY:** Students are expected to attend every class session. **If a student is absent for two consecutive weeks s/he will be administratively withdrawn from the course**. It is the responsibility of the student to catch up on material missed during an absence. **All students will be asked to self-report if they must quarantine or have been exposed to COVID-19 by filling out the COVID-19** [**Incident Report Form**](https://forms.office.com/Pages/ResponsePage.aspx?id=S_8IWW-rUkmWHLbDxQ34Kzw0_67sUS1Ov9jbznJoRWBUNVU2UzhPR0tUREZRQUdHME9aVDY1NzRBVi4u)

**WITHDRAWAL FROM COURSES OR SCHOOL:** It is the responsibility of the student to withdraw from a class. If a student decides to withdraw from a class, ideally, they should see an advisor and the financial aid staff before taking the withdrawal form to the Registrar's office for processing.  However, any verifiable contact (e-mail, fax, phone, mail, etc.) with authorized college personnel expressing the student's intent to withdraw from a class will be honored.

If students withdraw before they have earned their financial aid, they will owe Donnelly College a debt for the unearned portion of the financial aid as well as for any unpaid balances (subject to the College's refund policy). Not attending class is not a withdrawal from class.

**Donnelly College reserves the right to withdraw a student from class(es) if the student does not meet their financial obligations, including two missing or incomplete payments, or loss of financial aid.** Faculty may initiate an administrative withdrawal by non-attendance. In extreme circumstances (i.e., a disciplinary problem), the Vice President of Academic Affairs may initiate an administrative withdrawal. The student remains responsible for the tuition owed in this instance.

The deadlines for withdrawing from classes are as follows:

|  |  |
| --- | --- |
| 14 to 16 weeks | 3 weeks before the end of the class |
| 6 to 8 weeks | 7 weekdays before the end of class |
| 4 to 5 weeks | 4weekdays before the end of class |
| Less than 4 weeks | Withdrawals are not allowed |

Withdrawal deadline dates will be published in the academic calendar.

**COVID-19 POLICY:**

Students will be assigned specific seats in the classroom. These will be in effect throughout the semester. Cleaning wipes to wipe off spaces will be provided. Students are required to read and agree to the ‘Good Faith Agreement’ below.

**COVID-19**

Due to the COVID-19 pandemic Donnelly college has instituted several measures for your safety. The Donnelly college website has an update center. Here is a link to the Donnelly College COVID information (<https://www.donnelly.edu/updates>)

All students will read and sign the following Good Faith Agreement; ***“I pledge to monitor myself for the symptoms of COVID-19 and to observe the 3 “Ws” while on campus: Wash my hands, watch my distance and wear a mask. I will look out for others and encourage them to stay committed to keeping everyone healthy and I will participate in contact tracing to preserve the wellness of the Donnelly Community.”***

Additionally, Donnelly College is instituting the following attendance policy; **“*All students will be asked to self-report if they must quarantine or have been exposed to COVID-19 by filling out the COVID-19 Incident Report Form”.*** Here is a link to the COVID-19 Incident Report Form: <https://forms.office.com/Pages/ResponsePage.aspx?id=S_8IWW-rUkmWHLbDxQ34Kzw0_67sUS1Ov9jbznJoRWBUNVU2UzhPR0tUREZRQUdHME9aVDY1NzRBVi4u>

I have read and agree to the ‘Good Faith Agreement’ above.

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Printed Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**MT130 COLLEGE ALGEBRA**

**Fall 2021 Tentative Course Schedule**

# This schedule is subject to change based on the progress or needs of the class.

| **Week** | **Day** | **Topic** | **Homework** |
| --- | --- | --- | --- |
| 1 | T 08/17 | Syllabus  1.2 Exponents  1.3 Polynomials: Sums, Differences, and Products  1.4 Review of Factoring | Posted in Canvas |
| U 08/19 | 1.5 Rational Expressions  1.6 Roots and Radicals  1.7 Complex Numbers |
| 2 | T 08/24 | 2.1 Linear & Quadratic Equations & Formulas |
| U 08/26 | 2.2 More Quadratic Equations & Formulas |
|  | 2.3 Additional Equations and Formulas |
| 3 | T 08/31 | 2.4 More Applications & Modeling |
| 2.5 Linear, Quadratic, Rational Inequalities |
| U 09/02 | 2.6 Equations and Inequalities with Absolute values  Review |
| 4 | **T 09/07** | **Test #1** |
| U 09/09 | 3.1 Graphing |
| 5 | T 09/14 | 3.2 Introduction to functions and relations |
| 3.3 Function notation and more Graphing |
| U 09/16 | 3.4 Transformations and other graphing techniques |
| 6 | T 09/21 | 3.5 Functions: Algebra & composition |
| Review |
| **U 09/23** | **Test #2** |
| 7 | T 09/28 | 4.1 Slope of a line |
| 4.2 Linear Functions and Equations of lines |
| U 09/30 | 7.1 Systems of Linear Equations in two variables |
| 8 | T 10/05 | 7.2 Systems of Linear Equations in three variables |
| 7.5 Matrix solutions to linear systems |
| U 10/07 | 7.7 Inequalities and Systems of Inequalities in two variables  Review |
| 9 | **T 10/12** | **Test #3** |
| U 10/14 | 5.1 Quadratic Functions |
| 10 | T 10/19 | 5.2 Division with Polynomials |
| 5.3 Zeros of a Polynomial Function |
| U 10/21 | 5.6 Solving Polynomial Equations |
| 11 | T 10/26 | 5.4 Graphing Polynomial Functions |
| U 10/28 | 5.5 Graphing Rational Functions |
| Review |
| 12 | **T 11/02** | **Test #4** |
| U 11/04 | 6.1 Exponential Functions |
| 6.2 The Inverse of a Function |
| 13 | T 11/09 | 6.3 Logarithms are Exponents |
| U 11/11 | 6.4 Properties of Logarithms |
| 14 | T 11/16 | 6.5 Common Logarithms and Natural Logarithms |
| U 11/18 | 6.6 Exponential Equations and Change of Base |
| 15 | T 11/23 | Review |
| **U 11/25** | **Thanksgiving Day** |
| 16 | **T 11/30** | **Test #5** |  |
| U 12/02 | Final Review |
| 17 | **T 12/07** | **Study day** |  |
| **U 12/09** | **Comprehensive Final** |  |