Math 1050-005: College Algebra  
Spring Semester 2022  
MoTuWeFr / 11:50AM - 12:40PM / JFB 102

Instructor: Sanghoon Kwak  
Email: kwak@math.utah.edu  
Office Hours: Tue 1pm - 2pm, Fri 10am -11am  
Office Location: JWB 221

Required Materials  
The textbook for this course is available at no cost over Canvas.

Course Description  
This course covers functions, inverses, and graphs; polynomial, rational, radical, exponential, and logarithmic functions; systems of equations and matrices; applications; arithmetic and geometric sequences and series.

Course Outcomes  
1. Sketch the graphs of quadratic and cubic polynomials, rational, radical, exponential, logarithmic, and piecewise functions with or without transformations. Be able to identify important points such as x- and y-intercepts, maximum or minimum values; domain and range; and any symmetry.  
2. Given the graph of a function, be able to identify the domain, range, any asymptotes and/or symmetry, x- and y-intercepts, as well as find a rule for the function if it is obtained from a standard function through transformations.  
3. Perform composition of functions and operations on functions  
4. Find the inverse of a function algebraically and graphically.  
5. For polynomial, rational exponential and logarithmic functions, identify the x-intercepts, asymptotes, end behavior and domain from algebraic and graphic representations. Convert back and forth between algebraic, graphical and verbal representations.  
6. Solve polynomial, rational, exponential, and logarithmic equations and inequalities.  
7. Represent and interpret physical world situations using exponential and logarithmic functions.  
8. Define $i$ as the square root of -1 and know the complex arithmetic necessary for solving quadratic equations with complex roots.  
9. Perform matrix arithmetic computations.  
10. Solve systems of linear and non-linear equations in two or three variables, including the use of Gaussian elimination and matrix inverses in the linear case.  
11. Understand sequences and be able to differentiate between geometric, arithmetic and others such as Fibonacci-type sequences, giving direct formulas where available or a numeric representation.  
12. Understand series notation and know how to compute sums of finite arithmetic and finite and infinite geometric series.
Teaching and Learning Methods
Monday/Tuesday/Wednesday: Lecture
Friday: Quiz, Midterms

University Policies

1. The Americans with Disabilities Act. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

2. University Safety Statement. The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

3. Addressing Sexual Misconduct. Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

4. COVID-19 Spring 2022 Statement

* University leadership has urged all faculty, students, and staff to model the vaccination, testing, and masking behaviors we want to see in our campus community.

These include:

- **Vaccination**
- **Masking indoors**
- **If unvaccinated, getting weekly asymptomatic coronavirus testing**

**Vaccination**

- **Get a COVID-19 vaccination** if you have not already done so. Vaccination is proving highly effective in preventing severe COVID-19 symptoms, hospitalization and death
from coronavirus. Vaccination is the single best way to stop this COVID resurgence in its tracks.

- Many in the campus community already have gotten vaccinated:
  - More than 80% of U. employees
  - Over 70% of U. students

**Masking**

- Please be advised of Salt Lake County's Public Health Order 2022-01 ([https://slco.org/health/COVID-19/order/](https://slco.org/health/COVID-19/order/)):
  - **Requires respirators** (or until you are able to obtain a respirator, a well-fitting mask or face covering as an alternative) in public spaces while indoors (or queueing outdoors) from January 8 through February 7.
  - People living in or visiting Salt Lake County are required to wear a well-fitting respirator (a high-quality, certified mask) when indoors (or queueing outdoors) in public, regardless of COVID-19 vaccination status or past COVID-19 infection. People living in or visiting Salt Lake County are required to wear a well-fitting respirator (a high-quality, certified mask) when indoors (or queueing outdoors) in public, regardless of COVID-19 vaccination status or past COVID-19 infection.
  - **This includes inside schools, universities, and state-owned buildings.** If you cannot afford or locate a respirator, the order allows you to substitute a cloth mask and still be in compliance. You can make a cloth face covering more protective by following these tips from the CDC.
- Treat masks like seasonal clothing (i.e. during community surges in COVID transmission, masks are strongly encouraged indoors and in close groups outside).

**Testing**

- **If you are not yet vaccinated, get weekly asymptomatic coronavirus tests.** This is a helpful way to protect yourself and those around you because asymptomatic individuals can unknowingly spread the coronavirus to others.
  - Asymptomatic testing centers are open and convenient:
    - Online scheduling
    - Saliva test (no nasal swabs)
    - Free to all students returning to campus (required for students in University housing)
    - Results often within 24 hours
    - Visit [alert.utah.edu/covid/testing](alert.utah.edu/covid/testing)
- **Remember: Students must self-report if they test positive for COVID-19** via this website: [https://coronavirus.utah.edu/](https://coronavirus.utah.edu/)
5. **Honor code**
Students must adhere to the standards of academic integrity for this course. In particular, assessments that are not specifically labelled as being group work should be completed without outside help. We encourage you to make use of other internet sources in the learning process and for assistance on homework, but online resources are not to be used during quizzes or exams. Incidences of academic dishonesty will result at a minimum of a zero grade for that particular assignment, or possible stricter sanctions in accordance with University policy (see below).

**ACADEMIC CODE OF CONDUCT**
Students are encouraged to review the Student Code for the University of Utah: [https://regulations.utah.edu/academics/6-400.php](https://regulations.utah.edu/academics/6-400.php). In order to ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating. A student who engages in academic misconduct as defined in Part I.B. may be subject to academic sanctions including but not limited to a grade reduction, failing grade, probation, suspension or dismissal from the program or the University, or revocation of the student's degree or certificate. Sanctions may also include community service, a written reprimand, and/or a written statement of misconduct that can be put into an appropriate record maintained for purposes of the profession or discipline for which the student is preparing.

6. **Drop/Withdrawal Policies.** Students may drop a course within the first two weeks of a given semester without any penalties. Students may officially withdraw (W) from a class or all classes after the drop deadline through the midpoint of a course. A “W” grade is recorded on the transcript and appropriate tuition/fees are assessed. The grade “W” is not used in calculating the student’s GPA. For deadlines to withdraw from full-term, first, and second session classes, see the U's Academic Calendar.

7. **Additional Policies And Resources**
   c. The Learning Center, 3 free tutoring sessions, $5 after that, learning consultations [https://learningcenter.utah.edu/](https://learningcenter.utah.edu/).
   d. Student Success Advocates [https://ssa.utah.edu/events.php](https://ssa.utah.edu/events.php).
   e. Accommodation Policy (see Section Q): [http://regulations.utah.edu/academics/6-100.php](http://regulations.utah.edu/academics/6-100.php).
Course Policies

**Attendance:** As this is an in-person section, **all of quizzes and exams are in-person.** All the quizzes and midterm exams will be held during the class and you should be physically in the classroom to take such assessments. No make-up quizzes/exams will be made. Other than assessments, attendance is not mandatory.

**Calculator:** No calculator is allowed during assessments and this is the same policy throughout all sections of Math 1050. You may use it for homework.

**Cheating sheets:** Students can bring one page of letter-sized **handwritten** note for quizzes and midterm exams as a reference, and they can use both sides.

**Electronic Devices in Class:** No electronic devices are allowed during assessments.

**Communication:**
- All course materials, such as assignments, solutions, grades, etc. will be posted on the Course Canvas site. Class announcements will be done via Canvas. You will be responsible for any information contained in them as well as the information announced in class.
- It is also your responsibility to check your Canvas messages/email regularly. There will be occasions during the semester that we may need to reach out to you individually (e.g. regarding a grade or assignment) and it is in your best interest to respond promptly.
- Feel free to contact me by email or Canvas message. I will do my best to answer emails promptly. I would like to encourage you to email me only if it is something personal that requires individual attention, if instead you have questions about logistics of the class, course material and assignments, and anything else your classmates may wonder as well, please post a question on the Discussions Board instead. This way the information is shared quickly to the entire class, and each of you can benefit from seeing other classmates’ questions.
- I will always do my best to ensure the communication relevant to the course is clear and transparent, it is your responsibility as well to keep yourself updated by regularly checking: the announcements on Canvas, your Umail, the posts on the Discussions Board, and pay attention to the announcements given in class and Discussion Section.
- Students are expected to log in and check Canvas every day for posted announcements and assignments. Students are also strongly advised to set up notifications for Canvas so they do not miss any important notifications.

**Exam Dates:**
- Exam 1: Feb 11, 11:50 am - 12:40 pm (in class)
- Exam 2: Mar 25, 11:50 am - 12:40 pm (in class)
- Exam 3: Apr 15, 11:50 am - 12:40 pm (in class)
- Final Exam: **Apr 28 (Thu), 1:00-3:00 pm.** The only possible conflicts with this schedule occur if you are also taking Finance 3040 or French 1010, 1020, 2010, or 2020. If you are in one of these classes, work out final exam arrangements with your two instructors within the first two weeks of the semester.

**Official Drop/Withdraw Dates:** The last day to drop classes is Friday, January 21; the last day to withdraw from this class is Friday, March 4. Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student’s responsibility.

**Holidays:** There will be no class on January 17, February 21, and March 7-11.
# Course calendar

<table>
<thead>
<tr>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/9</td>
<td>Week 1</td>
<td>10 OT, Sec 1.1</td>
<td>11 Sec 1.1</td>
<td>12 Sec 1.2</td>
<td>13</td>
<td>14 Sec 1.2</td>
</tr>
<tr>
<td>1/16</td>
<td>Week 2</td>
<td>17 No class Martin Luther King, Jr. Day</td>
<td>18 Sec 1.3</td>
<td>19 Sec 1.3</td>
<td>20</td>
<td>21 Quiz 1 [In class]</td>
</tr>
<tr>
<td>1/23</td>
<td>Week 3</td>
<td>24 Sec 1.4</td>
<td>25 Sec 1.5</td>
<td>26 Sec 2.1</td>
<td>27</td>
<td>28 Quiz 2 [In class]</td>
</tr>
<tr>
<td>1/30</td>
<td>Week 4</td>
<td>31 Sec 2.2</td>
<td>2/1 Sec 2.3</td>
<td>2 Sec 2.4</td>
<td>3</td>
<td>4 Quiz 3 [In class]</td>
</tr>
<tr>
<td>2/6</td>
<td>Week 5</td>
<td>7 Sec 2.5</td>
<td>8 Sec 2.5</td>
<td>9 Review for MT1</td>
<td>10</td>
<td>11 Midterm 1 [In class]</td>
</tr>
<tr>
<td>2/13</td>
<td>Week 6</td>
<td>14 Sec 3.1</td>
<td>15 Sec 3.1</td>
<td>16 Sec 3.2</td>
<td>17</td>
<td>18 Sec 3.2</td>
</tr>
<tr>
<td>2/20</td>
<td>Week 7</td>
<td>21 No class President's Day</td>
<td>22 Sec 3.3</td>
<td>23 Sec 3.4</td>
<td>24</td>
<td>25 Quiz 4 [In class]</td>
</tr>
<tr>
<td>2/27</td>
<td>Week 8</td>
<td>28 Sec 4.1</td>
<td>3/1 Sec 4.2</td>
<td>2 Sec 4.2</td>
<td>3</td>
<td>4 Quiz 5 [In class]</td>
</tr>
<tr>
<td>3/6</td>
<td>Week 9</td>
<td>7 No class Spring break</td>
<td>8 No class Spring break</td>
<td>9 No class Spring break</td>
<td>10</td>
<td>11 No class Spring break</td>
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<tr>
<td>3/13</td>
<td>Week 10</td>
<td>14 Sec 4.3</td>
<td>15 Sec 4.3</td>
<td>16 Sec 4.3</td>
<td>17</td>
<td>18 Quiz 6 [In class]</td>
</tr>
<tr>
<td>3/20</td>
<td>Week 11</td>
<td>21 Sec 4.4</td>
<td>22 Sec 4.4</td>
<td>23 Review for MT2</td>
<td>24</td>
<td>25 Midterm 2 [In class]</td>
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<tr>
<td>3/27</td>
<td>Week 12</td>
<td>28 Sec 6.1</td>
<td>29 Sec 6.1</td>
<td>30 Sec 6.3</td>
<td>31</td>
<td>4/1 Sec 6.3</td>
</tr>
<tr>
<td>4/3</td>
<td>Week 13</td>
<td>4 Sec 6.4</td>
<td>5 Sec 6.4</td>
<td>6 Sec 6.4</td>
<td>7</td>
<td>8 Quiz 7 [In class]</td>
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<tr>
<td>4/10</td>
<td>Week 14</td>
<td>11 Sec 6.5</td>
<td>12 Sec 6.5</td>
<td>13 Review for MT3</td>
<td>14</td>
<td>15 Midterm 3 [In class]</td>
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<tr>
<td>4/17</td>
<td>Week 15</td>
<td>18 Sec 7.1</td>
<td>19 Sec 7.1</td>
<td>20 Sec 7.2</td>
<td>21</td>
<td>22 Sec 7.2</td>
</tr>
<tr>
<td>4/24</td>
<td>Week 16</td>
<td>25 Review for Final</td>
<td>26 Review for Final</td>
<td>27 No class Reading day</td>
<td>28 Final Exam 1:00-3:00 pm</td>
<td>29</td>
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</tbody>
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Grading Policy (Evaluation Methods & Criteria)
Semester letter grades will be given from students' percentiles of numerical semester scores (N); Roughly ~30th percentile of class will get A/A-, and 31th - 75th percentile will get B+/B0/B-. The rest will be given C+ or below depending on their relative performance in class.
The numerical grade consists of several components:

- **Homework(24%; 1%/section, the lowest 2 will be dropped):** Homework is delivered online through the IMathAS system. These homework will be linked through Canvas and are fully online (no file uploads needed). **Each homework set comprises relevant questions of individual section of textbook. It opens after the section is covered in class, and you have a week to finish.** If you think you have caught a mistake in the online homework, email me with an explanation of what you think is wrong. (if it is a valid catch, you are eligible for a Bonus point! See below)
- **Quizzes(12%):** There will be roughly weekly "in-class" quizzes. There are 8 quizzes in total: Quiz 0~7.
  - Quiz 0(2%) is an exceptional one that will be 1) given through Canvas on the syllabus that will take place during the first week, and 2) will be done on your time, not class time.
  - Quiz 1~7(2%/quiz, the lowest 2 will be dropped) are regular ones, asking a few questions about class material in the week before. The lowest two will be dropped, so they will contribute 10% to total.
- **Midterms(48%; 16%/midterm)** There will be three midterm exams which are longer than quizzes. These will be taken in person, during class time. The lowest midterm exam score may be dropped and replaced by a higher final exam grade. However, be aware that if you do not take an exam, that score will not be dropped -- it's best for you in the course to attempt all the assigned work.
- **Final Exam(16%):** The final exam will offer an opportunity to show mastery of topics after the time they were covered in the course. It is worth only a small portion of your final grade, but if mastery of topics is shown on the final (by scoring higher on the final than the lowest midterm score), the final exam grade will replace the lowest midterm score.
- **Bonus point(up to 5%):** If you happen to find any calculation/mathematical error in homework questions, or in my posted lecture notes, you are eligible for take 1% bonus grade toward total! It is First-come-first-served; if multiple people point out the same error, then the student that has reported earlier gets the bonus. I will post the errata with the student who spotted the error for such report comes. Total grade, of course cannot exceed 100%, and upto five findings will be counted.

It is the student’s responsibility to ensure the accuracy of all recorded homework, quizzes, online assignments, and exam grades. Also you should keep as record all your graded assignments. If you see any error in your grades on Canvas, reach out to the instructor as soon as possible, or at the latest within two weeks from when the assignment was returned.