COURSE TITLE: LINEAR ALGEBRA II  
Lecture time and location: MWF 9:00-9:50 TL 11  
Instructor: Xi Chen  
Phone: 780-492-1704  
Email: xichen@math.ualberta.ca  
Office and Office Hours: CAB 479, MWF 2-3 or by appointment

TEXTBOOK: *Linear Algebra: A Modern Introduction*, 4th edition, by David Poole. We also need Enhanced Webassign (EWA) for online homework. Here are the options for purchasing the textbook and EWA:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>UofA Bookstore</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hardcopy bundle (includes textbook and multi-term/life-of-edition EWA access code)</td>
<td>$167.40</td>
</tr>
<tr>
<td>2</td>
<td>Multi-term/life-of-edition, standalone EWA access (includes the access to the electronic version of the textbook)</td>
<td>$94.96</td>
</tr>
<tr>
<td>3</td>
<td>Used copy of Poole’s Book Use public computers available in Cameron Library to complete EWA homework</td>
<td>N/A</td>
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</tbody>
</table>

Students wishing to opt out of the fee-for-service online homework system will be able to complete assignments without cost on the public computers available in Cameron Library. With this no-cost alternative, students will be able to complete assignments only; they will not have access to the electronic textbook and additional features of EWA. Please note that the computers in Cameron Library are available on a “first-come-first-serve” basis; students should plan ahead to ensure timely completion of assignments.

We are going to cover the following sections in this course:

Answers to the self-assessment questions: TFTFTFFTFTT.
Sections in the parentheses are the sections covered by Math 125 and will be briefly reviewed in this course. This course is heavily dependent on the materials covered by Math 125. The students are strongly encouraged to review Math 125 on their own.

HOMEWORK ASSIGNMENTS: There will be 10 EWA (enhanced web assignments) and 5 written assignments administered through Crowdmark. No late assignments can be accepted for either EWA or written. The solutions to the written assignments will be posted on the course web site shortly after the assignments are due. Your assignment will be returned to you as soon as possible after grading. If you do not understand or agree with the grading for a particular problem, please check the posted solutions on the web. After checking the solutions, if you think an error has been made in grading, please write a note on your assignment pointing out the error and pass it in again with next week’s assignment. If you still think it has been graded improperly after it is returned to you again, please see your instructor. (See instructions below on EWA and Crowdmark).

EXAMS: There will be one midterm and final. No CALCULATORS, FORMULA SHEETS, NOTES or BOOKS are allowed in exams. You should bring a photo ID to all exams.
Final: Thursday April 20, 2017, 9-11, Room TBA.
Note that February 20-24 is the Winter reading week and the last day of class is April 12, 2017.

GRADING: I use the following formula to compute your total score

10% EWA + 10% Written Homework + 30% midterm + 50% final.

Your letter grade is then determined by a curve, roughly, 20% A, 25% B and 30% C (this ratio is subject to change; as a reference, this ratio was 20% A, 22% B and 31% C in the winter term of 2014). In addition, you are guaranteed an A- or above if your total score is at least 90% and you are guaranteed a D or above if your total score is at least 50%.

MISSED MIDTERM: A student who cannot write a midterm due to religious conviction, incapacitating illness, severe domestic affliction
or other compelling reasons may apply for an excused absence. To apply for an excused absence, the student must present supporting documentation pertaining to the absence to the instructor within two working days following the scheduled date of the missed term work, or as soon as the student is able. In the case of religious conviction, the student must inform the instructor by the end of the second week of classes. In the case of an incapacitating illness, either a medical note or a statutory declaration (which can be obtained at the student’s Faculty Office) will be accepted.

An excused absence is a privilege and not a right; there is no guarantee that an absence will be excused. Misrepresentation of facts to gain an excused absence is a serious breach of the Code of Student Behavior.

If an excused absence is granted, the weight of the midterm will be added to the final exam.

MISSED FINAL: A student who cannot write the final examination due to incapacitating illness, severe domestic affliction or other compelling reasons may apply for a deferred final examination. Such an application must be made to the student’s Faculty office within 48 hours of the missed examination and must be supported by a Statutory Declaration (in lieu of a medical statement form) or other appropriate documentation (Calendar section 23.5.6).

Deferred examinations are a privilege and not a right; there is no guarantee that a deferred examination will be granted. Misrepresentation of facts to gain a deferred examination is a serious breach of the Code of Student Behavior.

The deferred final examination is scheduled as follows:

- **Date:** Saturday May 6, 2017
- **Time:** 9:00 am (register at 8:30 am)
- **Location:** CAB 357

RE-EXAMINATION: A student who writes the final examination and fails the course may apply for a re-examination. Re-examinations are rarely granted in the Faculty of Science. These exams are governed by University (Calendar section 23.5.5) and Faculty of Science Regulations (Calendar section 192.5.9). Misrepresentation of facts to gain a re-examination is a serious breach of the Code of Student Behavior.
STUDENTS ELIGIBLE FOR ACCESSIBILITY-RELATED ACCOMMODATIONS (students registered with Specialized Support & Disability Services - SSDS): Eligible students have both rights and responsibilities with regard to accessibility-related accommodations. Consequently, scheduling exam accommodations in accordance with SSDS deadlines and procedures is essential. Please note adherence to procedures and deadlines is required for U of A to provide accommodations. Contact SSDS (www.ssds.ualberta.ca) for further information.

ACADEMIC INTEGRITY: UOA is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behavior and avoid any behavior which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and participation in an offense. Academic dishonesty is a serious offense and can result in suspension or expulsion from the university.

WEBSITE: All handouts and other course-related materials will be available at eClass and http://www.math.ualberta.ca/~xichen/math22517w. To cut down waste and save environment, I won’t make hard copies of these handouts anymore. Please go to eClass and download/print them out yourself.
EWA Registration Instructions:

- http://webassign.net
- A student account has been created for you on EWA. Your username is your Anonymous ID (which you can obtain on BearTracks).
- If this is your first time using your Anonymous ID account on EWA, your password has been set to your Anonymous ID as well. It is strongly recommended that you change your password the first time you log in EWA. If you have previously used your Anonymous ID account on EWA, your password remains unchanged.
- You currently have a grace period until January 15, during which you can use EWA without purchasing access. Before the end of the grace period, you must decide whether you wish to purchase access.
- With purchasing access (included if you buy a hardcopy of Poole’s book), you have the full access to EWA including
  - Ability to access EWA from any computer from anywhere any time of the day.
  - Access to all assignments/quizzes.
  - Access to the electronic version of the textbook and all additional features of EWA.
- If you have taken a linear algebra class at UofA previously, you may already have a valid EWA access code.
- Without purchasing access, you have restricted access to EWA:
  - Assignments/quizzes must be completed at a computer in Cameron Library.
  - No access from other computers.
  - Access only to assignments/quizzes.
  - No access to the electronic version of the textbook and additional features of EWA.

If you opt for the restricted access, please email me (xic@ualberta.ca) so I can manually transfer you to the restricted access section. If you change your mind later and purchase the full access, please let me know and I can transfer you back to the regular section.
Crowmark Instruction:

- https://crowdmark.com/
- A week or so before the assignment due date, I will post the assignment on Crowdmark.
- You will then receive an email with a link to your assignment copy. The email will also include instructions on how to submit your assignment, but let me go through them here as well.
- When you follow the link in the email you will see the assignment. You can complete the assignment either on paper or on a tablet.
- Once your assignment is done, you can save, scan or photograph your answers. If you've completed the assignment on a tablet, you'll need to save or export your work in PDF or JPG format. If you've completed the assignment on paper, you can either photograph or scan your answer. We recommend using a scanner to ensure that your work is legible for the person grading it (at least 200 DPI, greyscale or color, a darker setting if your scanner supports it). Make sure your files have a .pdf or .jpg extension.
- Upload your assignment. Drag and drop the files to the upload areas under the questions in the assignment. Make sure that the pages are in order and rotated correctly.
- Submit your assignment by clicking on “Submit pages for evaluation”.
- That’s it. To make sure that everything has been uploaded correctly, scroll down and review your submission. You may resubmit the files anytime before the due date.
- After the due date we will start marking. No assignments will be accepted after the due date.
- When the marking is done, you will receive an email with a link to your marked assignment!
## Tentative Homework Schedule (Subject to Change)

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Homework</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 23</td>
<td>EWA 1</td>
<td>23:59</td>
</tr>
<tr>
<td>January 27</td>
<td>Written HW 1</td>
<td>23:59</td>
</tr>
<tr>
<td>January 30</td>
<td>EWA 2</td>
<td>23:59</td>
</tr>
<tr>
<td>February 6</td>
<td>EWA 3</td>
<td>23:59</td>
</tr>
<tr>
<td>February 10</td>
<td>Written HW 2</td>
<td>23:59</td>
</tr>
<tr>
<td>February 13</td>
<td>EWA 4</td>
<td>23:59</td>
</tr>
<tr>
<td>February 27</td>
<td>EWA 5</td>
<td>23:59</td>
</tr>
<tr>
<td>March 10</td>
<td>Written HW 3</td>
<td>23:59</td>
</tr>
<tr>
<td>March 13</td>
<td>EWA 6</td>
<td>23:59</td>
</tr>
<tr>
<td>March 20</td>
<td>EWA 7</td>
<td>23:59</td>
</tr>
<tr>
<td>March 24</td>
<td>Written HW 4</td>
<td>23:59</td>
</tr>
<tr>
<td>March 27</td>
<td>EWA 8</td>
<td>23:59</td>
</tr>
<tr>
<td>April 3</td>
<td>EWA 9</td>
<td>23:59</td>
</tr>
<tr>
<td>April 7</td>
<td>Written HW 5</td>
<td>23:59</td>
</tr>
<tr>
<td>April 10</td>
<td>EWA 10</td>
<td>23:59</td>
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A Quick Self-Assessment (Math 125 or equivalent)

True or False:

(1) If a system of linear equations has more than one solution, it has infinitely many solutions.

(2) \( \det(-A) = -\det(A) \) for every square matrix \( A \).

(3) Every 2013 \( \times \) 2013 skew symmetric matrix is singular.

(4) \((AB)^T = A^T B^T\) for all matrices \( A \) and \( B \).

(5) For \( n \times n \) matrices \( A \) and \( B \), \( AB \) is nonsingular if and only if both \( A \) and \( B \) are nonsingular.

(6) \((A + B)^2 = A^2 + 2AB + B^2\) for all \( n \times n \) matrices \( A \) and \( B \).

(7) The products of symmetric matrices are symmetric.

(8) If \( \{v_1, v_2, v_3\} \) is a basis of \( \mathbb{R}^3 \), so is \( \{v_1 + v_2, v_2 + v_3, v_3 + v_1\} \).

(9) \( A \) and \( A^T \) have the same rank.

(10) If the characteristic polynomial of \( A \) is \( x^3 + x^2 + x \), then \( A \) is singular.