Instructor: Michella J. Bou Eid   **Office**: Bliss 112   **Email**: mb70@aub.edu.lb
Office Hours: M @ 1 , Th @ 2
Textbook: Introduction to Linear Algebra with Applications, by J. DeFranza and D.Gagliardi
Course Description: An introduction to linear algebra at a less theoretical level than Math 219. Systems of linear equations and Gaussian elimination, vectors in $\mathbb{R}^n$, matrices, determinants, vector spaces, subspaces and dimension, orthogonal projection and least-squares approximation, eigenvalues, eigenvectors and selected applications. Students cannot receive credit for both Math 219 and Math 218.
Prerequisites: Mathematical maturity at a level equivalent to having taken Math 211. In particular, facility with sets, logic, mathematical induction and some background in basic mathematical proof.
Course Learning Outcomes:

- Define systems of linear equations and use Gaussian elimination to solve linear systems.
- Find the transpose and inverse of a matrix using elementary row operations.
- Evaluate determinants using several techniques and use the properties of determinants to determine if a matrix is non-singular.
- Determine subspaces, spanning sets and bases of vector spaces and demonstrate linear independence or dependence of a set of vectors.
- Relate linear transformations to matrices and compute their rank.
- Compute the eigenvalues and eigenvectors of a matrix and learn the diagonalization of matrices.
- Define inner product spaces, angles and orthogonality, orthonormal bases.
- Apply Gram-Schmidt process to construct orthonormal bases.
- Perform orthogonal diagonalization of a symmetric matrix.

Exams: The grades allocated towards the final grade are: 1) Exam I, 25%; 2) Exam II, 25%; and 3) Final Exam, 50%.
Exam Dates:
Exam I: Tuesday, February 19, 2019 at 6:30 pm. (Room: To be announced)
Exam II: Thursday, March 28, 2019 at 6:30 pm (Room: To be announced)
UNIVERSITY POLICIES

- **Academic Integrity:**
  Please refer to AUB Student Code of Conduct:
  http://www.aub.edu.lb/pnp/generaluniversitypolicies/Documents/StudentCodeConduct/StudentCodeConduct.pdf , in particular section 1.1, which concerns academic misconduct including cheating, plagiarism, in-class disruption, and dishonesty. Please be aware that misconduct is vigorously prosecuted and that AUB has a zero tolerance policy. Course policy is that **credible evidence of cheating will result in course failure.**
- **Recommended Accessibility Statement to Acknowledge the Unique Learning Needs of Students with Disabilities:**
  AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you are encouraged to contact the Accessible Education Office: accessibility@aub.edu.lb; +961-1-350000, x3246; West Hall, 314.
- **Non-Discrimination**
  AUB is committed to facilitating a campus free of all forms of discrimination including sex/gender-based harassment prohibited by Title IX. The University's non-discrimination policy applies to, and protects, all students, faculty, and staff. If you think you have experienced discrimination or harassment, including sexual misconduct, we encourage you to tell someone promptly. If you speak to a faculty or staff member about an issue such as harassment, sexual violence, or discrimination, the information will be kept as private as possible, however, faculty and designated staff are required to bring it to the attention of the University's Title IX Coordinator. Faculty can refer you to fully confidential resources, and you can find

information and contacts at www.aub.edu.lb/titleix . To report an incident, contact the University's Title IX Coordinator Trudi Hodges at 01-350000 ext. 2514, or titleix@aub.edu.lb . An anonymous report may be submitted online via EthicsPoint at www.aub.ethicspoint.com

Course Policy: ·

- The grade for an unexcused missed Exam will be a zero. Students who miss an exam for a valid medical reason must provide a medical excuse from AUBMC within one week from the date of the exam.
- The university policy regarding incomplete work and other issues will be followed. Check the AUB catalogue for details.
- Regular attendance is expected. Students are responsible for all the material presented in class, including announcements about course procedure.
- Last day for withdrawal from courses: Friday, April 12, 2019.
- Normally, we use curving that assigns grades to students based on their performance relative to the class as a whole.
- At least 40% of the course grade will be known before the last day of withdrawal

ASSIGNMENT SHEET

Section	Suggested Problems
1.1	3, 10, 12, 18, 21, 25, 28, 29, 32, 34, 38, 40, 43, 44.
1.2	8, 20, 22, 24, 26, 28, 32, 34, 36, 40, 42, 46, 48, 50, 51.
1.3	12, 16, 18, 20, 22, 24, 27, 28, 29, 30, 32, 35, 36, 38, 40, 42, 43, 44.
1.4	6, 11, 12, 13, 16, 18, 19, 20, 24, 26, 27, 28, 30, 32, 34, 37, 38, 40.
1.5	6, 12, 16, 22, 26, 28, 32.
1.6	2, 3, 4, 18, 20, 23, 25, 28, 30, 32, 36, 40, 43, 52, 53, 54.
2.1	16, 21, 22, 28, 30, 34, 36, 38.
2.2	9, 10, 12, 15, 16, 19, 20, 22, 24, 27, 28, 33, 37, 38, 39.
2.3	7, 8, 9, 10, 13, 14, 20, 21, 24, 27, 28, 31, 32, 37, 38, 42.
3.1	3, 4, 7, 8, 9, 10, 12, 14, 15, 16, 17, 25, 31.
3.2	2, 4, 7, 8, 9, 11, 13, 14, 16, 18, 20, 23, 24, 26, 30, 32, 36, 38, 40, 43, 50.
3.3	3, 4, 6, 10, 11, 12, 16, 19, 20, 22, 24, 28, 36, 41, 42, 44.
3.4	3, 4, 8, 11, 16, 22, 24.
4.1	2, 3, 4, 5, 10, 11, 12, 14, 16, 18, 22, 26, 28, 30, 32, 34, 36, 38, 42.
4.2	4, 6, 7, 10, 12, 14, 16, 18, 20, 26, 28, 29, 30, 32, 34, 40, 43.
4.3	2, 8, 10, 12, 16, 19, 20, 22, 26, 27, 29, 30, 31, 32.
4.4	2, 6, 10, 14, 16, 17, 20, 24, 32.
4.5	2, 4, 6, 8, 10, 12, 16, 17, 18.
5.1	2, 4, 8, 12, 14, 17, 18, 19, 20, 21, 23, 24, 28, 29, 32, 35.
5.2	2, 4, 6, 8, 12, 16, 20, 22, 24, 27, 28, 30, 31, 32, 33, 34, 35, 38.
6.1	2, 3, 4, 11, 12, 13, 14, 15, 16, 18, 24, 30.
6.2	2, 6, 8, 10, 12, 18, 20, 22, 28, 30.
6.3	4, 8, 12, 14, 16, 18, 20, 24, 31, 34, 36, 37.
6.4	4, 6, 10, 14, 16, 18, 22, 27, 29.
6.5	2, 4, 6, 8.