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## Department of Architecture, Engineering, & Technology

## West Campus Building 9 room 140 – 407.582.1902

#### **EGN 2440 – Probability & Statistics for Engineers Spring 2024**

**Textbook:** *Not required*

**Recommended book***:* ***Probability and*** ***Statistics for Engineers and Sciences,*** 8th/9th ed. Jay L. Devore, ISBN-13: 978-1305251809 (9th edition)

**Instructor:** Prof. M. Kar

**Office:** West Campus, Bldg. 11 – Room 259

**Phones:** (Office) 407-582-1182

**Fax:** 407 582 1900

**Email:** [mkar@valenciaccollege.edu](mailto:mkar@valenciaccollege.edu) (prefer via Canvas email)

**Class location**: Tuesdays from 10 to 11:15AM in room 11-239)

**Office Hours:** Mon / Thurs: 10:00 to 1:00 PM (on-line)

Tues: 1:00AM to 2:00PM (room 11-259)

Wed: 12:30 to 2:00 PM (room 11-259)

Friday: 9 AM to 11:00 AM (on-line)

**Prerequisite:** **MAC 2312** – With a grade of C or better.

**Course Objectives (3 credit hours):** Topics include axioms of probability, measures of location and dispersion, sampling and sampling distributions, estimations and tests of hypotheses, probability distributions, combinatorial and geometrical probability, and engineering applications

**Grading Policy:**

Class-activity 5% 90 - 100% = A

Quizzes1 10% 80 - 89% = B

Group Project 20% 70 – 79% = C

Tests 1-31 60%

Self-Assessment 5% 60 - 69% = D

Total 100% below 60% = F

1 ***No make-up*** tests and quizzes will be given.

**Disclaimer:** Changes in syllabus and/or schedule may be made at any time during the

term by announcement from the instructor

**Notes:**

* Students are strongly encouraged to try the provided list of recommended problems. This selection may not give you sufficient practice. Consider your own level of understanding, and practice additional problems as needed.
* Even though most of the course material is from the textbook, the lectures may or may not necessarily follow the text word-by-word. Therefore, it is the student’s responsibility to be in class and take notes. Exams will cover all material covered ***in class***, Assignments and recommended problems.

**Course Outcomes:**

The student will be able to:

* present graphical and numerical methods for exploring, summarizing, and describing data
* understand probability concepts and recognize how they should be applied to solve engineering problems.
* learn the fundamentals of discrete random variables, its probability distribution, and corresponding numerical descriptive measures and how they can be used to solve practical problems
* distinguish between continuous and discrete random variables and their respective probability distributions; to apply some useful continuous probability distributions to solve practical problems
* learn various concepts and analysis of probability distributions and sampling distributions
* learn concepts of statistical estimation, their use in practical samplings involving one sample
* learn concepts of a statistical test of a hypothesis and their use in practical sampling situations
* learn the basic concepts of simple linear regression analysis predicting future situations based upon the known variables/parameters

**Important Dates:**

**Jan 16th Drop/Refund deadline**

**Jan. 15th, Feb. 9th  College is closed**

**March 15th Withdrawal deadline for “W” Grade**

**March 18-24th Spring break**

**April 22th – 28th Final Exams**

**April 30th  Grades are due**

**Tests:**

Test#1 Chapters 1, 2 and 12

Test#2 Chapters 3 and 4

Test#3 Chapters 5, 7, 8, and 9

**Test/Quiz policy:**

1. Circle all test answers for credit. **Show all your work for full grade**. Simply written down answers will not be given any credits and receive a grade of “0” (zero).

2. Tests will be **proctored online**, so a computer with microphone and **webcam is required**.

3. All tests are **online** but will have **set scheduled time (two options**)

4. **There is no “dropped” test score or Curve.**

5. **No Make-up for tests/quizzes**. (unless special circumstances as agreed to by Instructor).

6. Missing 2 tests will result in withdrawal.

7. The Test#3 is required. **Failing to take the Test#3 will result in overall grade “F”**.

**Quizzes:**

Quizzes (30 min.) will be given online. Check the class schedule for the tentative dates. Lowest quiz grade will be dropped.

**Class Assignments**:

After each lecture there will be some Assignments to complete and **submit via canvas**. Submission of class assignments will be counted as the **class attendance** and worth 5% of total grade. The assignments will be graded based on the student’s effort not based on the correct answer, therefore I recommend submitting your own work so that I can correct your mistakes. Lowest Class Assignment grade will be dropped.

**Self-Assessment Quiz:**

After each lecture there will be a self-assessment quiz. You are required to score 80% or above to continue to next item. This quizzes consist of Ture/False or multiple choice questions and you have 3 attempts to get the required score.

**Group Project:**

Usual group will consists of **3 to 4 students**. Good projects begin with very clear and well-defined hypotheses. You should think of questions that interest you first, then think about how to collect and analyze data to address those questions. Group should submit the **proposal** via canvas by the proposal due date and submit the final report by the **project** due date.

**Extra Practice:**

Problems and their solutions are already postedin canvas. These are for your practice and will not be graded. Please don’t submit those. If you have any question on those problems please email me.

**Attendance:**

The Department of Education has made it clear that simply logging into an online course does not constitute attendance as an “academically-related activity.” To document “attendance” in online courses, the students must participate in an “academically-related activity” such as

* submit an online assignment.
* take an online assessment.
* participate in an online discussion about academic matters.
* complete an online interactive tutorial or computer-assisted instruction that is trackable.
* initiate contact with the faculty member to ask a question about the academic subject studied in the course.

Any students who do not engage in an “academically-related activity” during the first week of class will be Withdraw from the class during the “No-Show Reporting” period.

**Class Policies:**

1. More than three missing **class assignments** and you may be withdrawn from the class (advance notice of reason for missing class activity is appreciated)

2. It is the student’s responsibility to find out what was covered in each lecture.

3. It is the responsibility of the student to withdraw themselves before the withdrawal deadline and to be aware of the date of the withdrawal deadline.

4. Lectures are already recorded and posted in the canvas.

5. There will be a zoom Q & A session on every Thursday. The time and link to the zoom meeting will be provided in canvas. The meetings are optional but you will be benefited if you join as you can interact with the professor at that time. These zoom meetings will not be recorded.

6.  **You are encouraged to ask relevant questions during the zoom meeting.**

7. **Grades will not be disclosed over the telephone or via e-mail, except through your Atlas and canvas account**.

8. This course is not about your ability to use a calculator! It is about to excel and improve your abilities to correctly and properly think, analyze, process, and solve real problems as a future engineer.

9. Online class usually requires **more preparation time and more discipline** compare to face-to-face classes. Please stay with the class schedule don’t fall behind.

10. Each student is responsible for his or her own work. All quiz/tests and graded assignments are to be exclusively your own work, unless you receive instructions to collaborate. Using any human, written, electronic, or other resource in any manner not explicitly authorized by the instructor will result in a grade of zero on the exam(s) or assignment(s) involved.

11. Cheating is prohibited. **If any student is caught cheating, the Instructor has the right to withdraw the student from the class** and recommend expulsion from the program.

12. Classroom behavior will be governed by the “Student Code of Classroom Conduct”.

13. Students with disabilities who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities and discuss specific needs with the Instructor, preferably during first 2 weeks of class. The OSD office determines accommodations based on appropriate documentation of disabilities (SSB-102 ext. 1523).

14. In order to academically maintain financial aid, students must meet all of the following requirements:

* Complete 67% of all classes attempted, and
* Maintain a Valencia GPA of 2.0 or higher, and
* Complete degree within the 150% timeframe

**Proctored Exam Requirement**

 To take an online exam, you will need:

* A laptop or desktop computer with a microphone and webcam
* A webcam
* Reliable Internet connection

**Class schedule:**

The following is a tentative schedule based upon class needs. The Instructor reserves the right to make any schedule changes necessary.

|  |  |  |
| --- | --- | --- |
| Date | Materials | Quiz / Test |
| Week 1  1/08 to 1/14 | Chapter 1 | Assignment 1.1 (Jan. 10) |
| Chapter 1 | Assignment 1.2 (Jan. 14) |
| Week 2  1/15 to 1/21 | Chapter 1 | Assignment 1.3 (Jan. 17) |
| Chapter 1 | Assignment 1.4 (Jan. 21) |
| Week 3  1/22 to 1/28 | Chapter 2 | Quiz on Chapter 1 (Jan. 25) |
| Chapter 2 | Assignment 2.1 (Jan. 24) |
| Chapter 2 | Assignment 2.2 (Jan. 28) |
| Week 4  1/29 to 2/04 | Chapter 2 | Quiz on Chapter 2 (Feb.1) |
| Chapter 2 | Assignment 2.3 (Jan. 31) |
| Review | Assignment 2.4 (Feb 4) |
| Week 5  2/05 to 2/11 | 10:00 AM to 11:15 AM | Test # 1 Feb.7th |
| Chapter 12 | Assignment 12.1 (Feb. 6) |
| **Project Team Due** | **Feb. 11** |
| Week 6  2/12 to 2/18 | Chapter 3 | Assignment 3.1 (Feb. 14) |
| Chapter 3 | Assignment 3.2 (Feb. 18) |
| Week 7  2/19 to 2/25 | Chapter 4 | Assignment 3.3 (Feb. 21) |
| Chapter 4 | Assignment 3.4 (Feb. 25) |
| Week 8  2/26 to 3/03 | Chapter 4 | Assignment 4.1 (Feb. 28) |
| Chapter 4 | Assignment 4.2 (March 3) |
|  | Quiz on Chapter 3 (Feb. 29) |
| Week 9  3/04 to 3/10 | Chapter 4 | Assignment 4.3 (March 6) |
| Chapter 4 | Assignment 4.4 (March 10) |
| Week 10  3/11 to 3/17 | 10:00 AM to 11:15 AM | Test # 2 March 13th |
| Chapter 5 | Assignment 5.1 (March 17) |
| **Project proposal due** | **March 13th** |
| Week 12  3/24 to 3/31 | Chapter 5 | Assignment 5.2, 5.3 (March 24) |
| Chapter 8 | Assignment 8.1 (March 27) |
|  | Quiz on Chapter 5 (March 28) |
| Chapter 8 | Assignment 8.2 (March 31) |
| Week 13  4/01 to 4/07 | Chapter 8 | Assignment 8.3 (April 3) |
|  | Quiz on Chapter 8 (April 4) |
| Chapter 9 | Assignment 9.1 (April 7) |
| Week 14 4/8 to 4/14 |  | Quiz on Chapter 9 (April 11) |
| Chapter 9 | Assignment 9.2 (April 10) |
| **Project report due** | **April 14th** |
| Week 15 4/15 to 4/21 |  | Quiz on Chapter 7 (April 18) |
| Chapter 7 | Assignment 7.1 (April 17) |
| Chapter 9 | Assignment 9.3 (April 21) |
| 10:00 AM to 11:30AM | Test #3 **April 24th** |

**Illness Statement:**

*If you are unable to participate in the course due to illness, family emergency, etc., please communicate with me as soon as possible in order to create a plan to complete any missed assignments so that your learning can progress in your course. In the case of a prolonged online absence, please communicate with me as soon as possible in order to create a plan for the best course of action*.

**Academic Resources**

We want you to stay connected to the latest academic resources we have available for you during this transitional time.

**West Campus Bookstore:**

Campus Store will be open Monday – Friday, 8 a.m. – 6 p.m.  
Campus store window pick-up will be available Monday – Saturday, 8 a.m. – 6 p.m.

**Downtown Campus**  
The Campus Store at the Downtown Campus is owned and operated by Barnes & Noble and will continue to operate online for the Fall 2021 term. Visit the [Campus Store website for the Downtown Campus](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fvalenciacollege.edu%2Flocations%2Fdowntown%2Fcampus-store.php&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442184617%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=eVF7aL43KFrBqiEpuEmNn%2B%2B%2BVfjHeYI54txioKICN8c%3D&reserved=0) for more information and to [order online](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fucf-vc.bncollege.com%2Fshop%2Fucf-valencia%2Fhome&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442184617%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=hTJKhtKYoCdqPlrEN4lu0pz41TlACABM9QE9xrhxFeY%3D&reserved=0)**.**

**Other Campuses**  
Valencia Campus Stores will be closed during the Fall 2021 term. Visit the[**Valencia Campus Store website**](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fvalenciacollege.edu%2Fstudents%2Fcampus-store%2F&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442194612%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=h72dxYZ%2FkHvfMcxrqJ5Ef2bBY6O%2F3rjpUPGDQPfEUvY%3D&reserved=0)for more information and online ordering.

**Customer Service**  
**Monday – Friday 8 a.m. – 6 p.m.**  
**407-299-5000, extension 5310**  
[**onlineorder@valenciacollege.edu**](mailto:onlineorder@valenciacollege.edu)

**Learning Support Services** provides students with academic support through distance tutoring, face to face tutoring at the campuses, writing consultations, library services, and resources. Tutoring is offered in most academic disciplines including math, science, foreign languages, English for academic purposes (EAP), computer programming and writing assistance for any course.  Assistance with library research can be accessed online through Atlas or the tutoring LibGuide.  For more information on how to access tutoring and library research assistance, please visit the college-wide Learning Support Services LibGuide at: [www.valenciacollege.edu/tutoring](https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.valenciacollege.edu%2Ftutoring&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442194612%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=k43D4en7XIKrKI35ysN5EH3NwSuWOqMMznHYcm9ninc%3D&reserved=0)

**Please note**: Brainfuse is our new  24/7 online tutoring and learning hub, which is available to all of Valencia’s students.  This service is best used as a back-up to Valencia’s Distance Tutoring service, not as a replacement.  Brainfuse is accessible through Canvas or by visiting [www.valenciacollege.edu/tutoring](https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.valenciacollege.edu%2Ftutoring&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442204600%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=OEg6cg19bwHN%2FtjM6ZMIYCPGSyxM9CEXRVoT8nw2c3k%3D&reserved=0)

**Academic Advising:**

* Call: 407-582-1507
* Email: [advising@valenciacollege.edu](mailto:advising@valenciacollege.edu)
* Visit [https://valenciacollege.edu/students/student-services/support.php](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fvalenciacollege.edu%2Fstudents%2Fstudent-services%2Fsupport.php&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442204600%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=O0YDeXIAi10evy%2BIn7MIPoWVCQpajfxx3mAXVGeZ4ro%3D&reserved=0) for links and information on how to get connected to each of the following:
  + **Virtual Answer Center or Virtual Advising Center** (online Zoom access): Monday-Thursday 10a-7p, Fridays 9a-5p; Virtual Answer Center only – Saturdays 9a-1p
  + **Make an appointment** (in person): Monday-Thursday 8a-5p, Fridays 9a-5p (East, West, and OSC only), Fridays - virtual only (DTC, LNC, WP, PNC).

**Enrollment Services:**

         (phone access): Monday-Thursday 8a-6p and Fridays 9a-5p (407-582-1507)

**Financial Aid:**

Contact [FinAidOffice@valenciacollege.edu](mailto:FinAidOffice@valenciacollege.edu) for their financial aid questions, as well as for potential assistance with financial support

As a reminder, you can [review the full list of student services hours of operation](https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdrive.google.com%2Ffile%2Fd%2F1ZafZ7jOMwKLrWHSischZiSyF_oA7W6oz%2Fview&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442204600%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=ZdHaGbYAvSuB%2Fg2NQD4zeDj0j8iG7dajofPwzMxjbz0%3D&reserved=0), which was provided in a past [Grove Article](https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fthegrove.valenciacollege.edu%2Froadmap-for-reopening-phase-4-hours-of-operation%2F&data=04%7C01%7Cmkar%40valenciacollege.edu%7Cc9bef0b886654c06c99308d963959878%7C0e8866953d1741a88544135b0a92a47c%7C1%7C0%7C637650316442214606%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=RM5JH7sQ512CJAGRDKvAfqdtPtBnKr%2FqCeng4e12IMI%3D&reserved=0) for the Roadmap to Reopening.

**Withdrawal Policy**

Per Valencia Policy 4-07 (Academic Progress, Course Attendance and Grades, and Withdrawals), a student who withdraws from class before the withdrawal deadline of (*insert appropriate date)* will receive a grade of “W.” A student is not permitted to withdraw from this class after the withdrawal deadline; if you remain in the class after the withdrawal deadline, you can only receive a grade of A, B, C, D, F or I. An I grade will only be assigned under extraordinary circumstances that occur near the end of the semester. If you receive an I, the work missed must be made up during the first week of the following semester, at which time you will get an A, B,C,D or F. Failure to make up the work during the following semester will result in you getting a grade of F in the course.Any student who withdraws or is withdrawn from a class during a third or subsequent attempt in the same course will be assigned a grade of “F.”

**Student Core Competencies**

The faculty of Valencia College has identified four core competencies that define the learning outcomes for a successful Valencia graduate. These competencies are at the heart of the Valencia experience and provide the context for learning and assessment at Valencia College. You will be given opportunities to develop and practice these competencies in this class. The four competencies are:

1. **Think** - think clearly, and creatively, analyze, synthesize, integrate and evaluate in the many domains of human inquiry
2. **Value** - make reasoned judgments and responsible commitments
3. **Communicate** - communicate with different audiences using varied means
4. **Act** - act purposefully, effectively and responsibly.

**Expected Student Conduct**

Valencia Community College is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia Community College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in the disruption of a class may be directed by the faculty member to leave the class. Violation of any classroom or Valencia’s rules may lead to disciplinary action up to and including expulsion from Valencia. Disciplinary action could include being withdrawn from class, disciplinary warning, probation, suspension, expulsion, or other appropriate and authorized actions. You will find the Student Code of Conduct in the current Valencia Student Handbook

**Students with disabilities** who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).