FLORIDA ATLANTIC UNIVERSITY

# COURSE CHANGE REQUEST
## Undergraduate Programs

**Department** Computer & Electrical Eng & Comp Sci

**College** Engineering & Comp Science

UUPC Approval 3-29-21
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

| ***Current* Course Prefix and Number** | EEE 4541 | ***Current* Course Title** | Stochastic Processes and Random Signals |
|---|---|---|---|

*Syllabus must be attached for **ANY** changes to current course details. See Checklist. Please consult and list departments that may be affected by the changes; attach documentation.*

**Change title to:**

**Change prefix**

**From:** **To:**

**Change course number**

**From:** **To:**

**Change credits***

**From:** **To:**

**Change grading**

**From:** **To:**

**Change WAC/Gordon Rule status****

**Add** ☐ **Remove** ☐

**Change General Education Requirements*****

**Add** ☐ **Remove** ☐

*Review Provost Memorandum

**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.

***General Education criteria must be indicated in syllabus and approval attached to this form. See GE Guidelines.

**Change description to:**

See attached

**Change prerequisites/minimum grades to:**

MAC 2312 with minimum grade of C

**Change corequisites to:**

**Change registration controls to:**

Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).

| **Effective Term/Year for Changes:** | Fall 2021 | **Terminate course? Effective Term/Year for Termination:** | |
|---|---|---|---|

**Faculty Contact/Email/Phone** Hari Kalva, hkalva@fau.edu, 561-297-0511

| ***Approved by*** | | ***Date*** |
|---|---|---|
| Department Chair | Hanqi Zhuang Digitally signed by Hanqi Zhuang Date: 2021.03.05 18:38:23 -05'00' | |
| College Curriculum Chair | Dan Meeroff | 3-18-21 |
| College Dean | Frederick Blootscher | 3-18-21 |
| UUPC Chair | Jerry Haky | 3-29-21 |
| Undergraduate Studies Dean | Edward Pratt | 3-29-21 |
| UFS President | | |
| Provost | | |

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

**New course description for EEE 4541**

Introduction to probability, statistics, and random processes, conditional probability, random variables, distribution and density functions, stochastic processes, the central limit theorem, power spectral density, detection of signals in the presence of noise. Applications communication networks and system performance evaluations.

**Department of Computer & Electrical Engineering and Computer Science**
**Florida Atlantic University**
**Course Syllabus**

| **1. Course title/number, number of credit hours** | |
|---|---|
| **EEE 4541** Stochastic Processes and Random Signals | # of credit hours: 3 |
| **2. Course prerequisites, co-requisites, and where the course fits in the program of study** | |
| Prerequisites: MAC 2312 with a minimum grade of C | |
| **3. Course logistics**<br>This course accommodates classroom lectures and Distance-learning students | |
| *Term*: TBA | |
| **4. Instructor contact information** | |
| *Instructor's name*<br>*Office address*<br>*Office Hours*<br>*Contact telephone number*<br>*Email address* | TBA |
| **5. TA contact information** | |
| *TA's name*<br>*Office address*<br>*Office Hours*<br>*Contact telephone number*<br>*Email address* | TBA |
| **6. Course description**<br><br>**Introduction to probability, statistics, and random processes, conditional probability, random variables, distribution and density functions, stochastic processes, the central limit theorem, power spectral density, detection of signals in the presence of noise. Applications communication networks and system performance evaluation.** | |
| | |
| **7. Course objectives/student learning outcomes/program outcomes** | |
| *Course objectives* | To impart basic learning in the areas of applying statistics, probability theory and concepts of stochastic processes in engineering in general and in computer/communication systems<br>To provide certain technical skills required in computer science and engineering applications; to understand and appreciation statistical concepts and their reasoning in everyday use of computers and engineering methods; and to show, in passing, that the subject is interesting, enlightening, and even surprisingly useful. To examine the possible relationship between the theory (mathematical model) and experimental simulations. |

**Department of Computer & Electrical Engineering and Computer Science**
**Florida Atlantic University**
**Course Syllabus**

| | |
|---|---|
| *Student learning outcomes & relationship to ABET Outcome 1-7* | 1. An ability to identify, formulate, and solve complex computing/engineering problems by applying principles of computing, engineering, science, and mathematics. |

**8. Course evaluation method**

| | |
|---|---|
| Class Discussion - 5%<br>Homework - 20 %<br>3 Exams (equally weighted) - 75 %<br><br>**Tentative Exam Schedule:**<br>Exam #1: February 12, 2021<br>Exam #2: March 19, 2021<br>Exam #3: April 28, 2021 | *Note*: The minimum grade required to pass the course is C. |

**9. Course grading scale**

Grading Scale:
A: 93-100; A-: 90-92; B+: 85-89; B: 80-84; B-: 75-79; C+: 70-74; C: 60-69; C-: 50-59; D+: 45-49; D: 40-44
F: less than 40

**10. Policy on makeup tests, late work, and incompletes**

No late work is accepted unless by special permission from the instructor. All homework assignments and take-home exams must be submitted on Canvas. **No email submissions will be graded.**

*Incomplete grades* are not in general favored as a policy of the department. Unless there is a solid evidence of medical condition/jury-duty or otherwise serious emergency/family situation incomplete grades will not be given. No incomplete grade will be given to a failing student.

**11. Special course requirements**

**12. Classroom etiquette policy**

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.

**13. Disability policy statement**

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/

**14. Counseling and Psychological Services (CAPS) Center**

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few –

offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

**15. Honor code policy**

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

**16. Required texts/reading material**

S. Ross: A First Course in Probability, Prentice Hall, 10th edition, 2018
ISBN 10: 0134753119
ISBN 13: 9780134753119

**17. Supplementary/recommended readings**

**18. Course topical outline, including dates for exams/quizzes, papers, completion of reading**

Core Topics

- Events, sample space, axioms of probability
- Joint and conditional probability, independence
- Random variables; mean and variance
- Discrete and continuous distributions
- Transformation of RVs
- Generation of random variables
- Higher-dimensional distributions
- Sum of random variables, convolution
- Central limit theorem
- Random processes
- Power spectral density
- Applications to network communications and system performance evaluation