Fall 2023 Course List

Updated May 31, 2023

Undergraduate

- ROB 101: Computational Linear Algebra (Berger)
- ROB 102: Intro to AI & Programming (Jenkins / Pavlasek)
- ENG 100.850: Robotics Mechanisms (Yeo)
- ROB 204: Introduction to Human-Robot Systems (Stirling)
- ROB 311: How to Build Robots and Make Them Move (Rouse / Huang)
- ROB 330: Localization, Mapping, and Navigation (Skinner)
- ROB 422/EECS 465: Introduction to Algorithmic Robotics (Berenson)
- ROB 498: Introduction to Manipulation (Fazeli)
- ROB 498: 3D Robot Perception (Corso)
- ROB 498: Storytelling with Robotics (Emigh / Narula)
- ROB 498: Computational HRI (Mavrogiannis)

Graduate

Robotics Core

- ROB 501: Math for Robotics (Panagou)
- ROB 502: Programming for Robotics (Yeo / Formosa)
- ROB 550: Robotics Systems Lab (Gaskell)

Sensing

- EECS 442: Computer Vision (Owens)
  Note: Enrollment for 442 is primarily reserved for undergraduate students. Grad enrollment with instructor consent.
- EECS 504: Foundations of Computer Vision (Corso)

- EECS 542: Advanced Topics in Computer Vision (Yu)
- EECS 551: Matrix Methods for Signal Processing (Fessler)
- ROB 599: 3D Robot Perception (Corso)
- ROB 535 / MECHENG 599/ NAVARCH 565/ EECS 498: Self Driving Cars: Perception and Control (Ghaffari)
- ROB 599: Autonomous Vehicles (Girard)

Reasoning

- AEROSP 584: Navigation & Guidance of Aerospace Vehicles (Tzoumas)
- EECS 453: Principles of Machine Learning – *EECS 543 OR EECS 545 (not both) can count toward the Robotics MS and/or PhD
- EECS 548: Info Visualization (Adar)
- EECS 553: Machine Learn ECE (Oymak)
- EECS 563: Hybrid Systems: Specification, Verification, & Control (Ozay)
- EECS 592: Foundations of Artificial Intelligence (Chakraborty)
- EECS 595: Natural Language Processing (Chai)
- EECS 598.011: Reinforcement Learning (Baveja)
- IOE 611: Nonlinear Programming (Fattahi)
- ROB 422/EECS 465: Introduction to Algorithmic Robotics (Berenson)

Acting

- AEROSP 470: Control of Aerospace Vehicles (Bernstein)
- AEROSP 540 / MECHENG 540: Intermediate Dynamics (Gillespie)
- AEROSP 584: Navigation & Guidance of Aerospace Vehicles (Tzoumas)
- BME 527: Topics in Neuromod (Weiland)
- EECS 460: Control Systems Analysis and Design (Meerkov)
- EECS 461: Embedded Systems Control (Freudenberg)
- EECS 560 / MECHENG 564 / AEROSP 550: Linear Systems Theory (Gillespie)
- EECS 563: Hybrid Systems: Specification, Verification, & Control (Ozay)
- MECHENG 599.007: Applied Optimal Control (Vermillion)
- NAVARCH 540: Marine Dynamics III (Pan)
- ROB 422/EECS 465: Introduction to Algorithmic Robotics (Berenson)
- ROB 498: Introduction to Manipulation (Fazeli)

- ROB 535 / MECHENG 599/ NAVARCH 565/ EECS 498: Self Driving Cars: Perception and Control (Ghaffari)
- ROB 599: Autonomous Vehicles (Girard)

Elective

In addition to the courses listed below, any 500-level CoE course can count as an elective.

- AEROSP 585: Aerospace Seminar (topic varies by term)
- BME 599.017: Automated Science (Jensen)
- CMPLXSYS 535: Thry Soc Tech Netwks (Newman)
- EECS 471: Applied GPU Programming (Tenishev)
- EECS 501: Probability & Random Processes (Ying)
- EECS 587: Parallel Computing (Stout)
- EER 601: Foundations of Engineering Education Research (Finelli)
- ELI 521: Writing for Academic Purposes I (Nezami)
- ENTR 407: Entrepreneurship Hour (Bacyinski)
- ENTR 500: Intro to Innovation Careers (Crumm)
- ENTR 520: Tech-Inspired Business Models (Crumm)
- ENTR 530: Innovation & IP Strategy (Quinn)
- ENTR 550: Interpersonal Skills (Fretz)
- ENTR 560: Project Management and Consulting (Cell)
- ENTR 599 (all sections)
- ISD 599F: Vehicle Crashworthiness and Occupant Protection (Hu)
- KINESLGY 431: Clinical Gait Analysis (Richards)
- MATH 451: Advanced Calculus I (TBD)
- MATH 525: Probability Theory (TBD)
- ROB 599: Computational HRI (Mavrogiannis)
- TCHNCLCM 610: Academic and Professional Writing (Snyder)