

BIOMEDICAL ENGINEERING

BME

College of Engineering

401 Quantitative Human Biology

Spring. 3(4-0) Interdepartmental with Human Anatomy and Materials Science and Engineering and Radiology. Administered by Biomedical Engineering. P:M: (MTH 235 and PHY 184) and ((PSL 250 or concurrently) or (PSL 431 or concurrently) or (ANTR 350 or concurrently)) and (CEM 141 or CEM 151) RB: (CSE 131 or concurrently) or (CSE 231 or concurrently) or PSL 410

Qualitative description and quantitative engineering analysis of selected, tractable human-biological systems. Multi-disciplinary problem-solving among medical and engineering professionals.

425 Biomaterials and Biocompatibility

Spring. 3(3-0) Interdepartmental with Materials Science and Engineering. Administered by Materials Science and Engineering. P:M: (PSL 250 or concurrently) and MSE 250 SA: MSM 424, BME 424, BME 324, MSE 324

Materials science of human implants. Design requirements imposed by the human body, and need for bodily protection.

490 Independent Study

Fall, Spring. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.

Individualized reading and research in biomedical engineering or bioengineering.

490A Independent Study in Clinical Biomechanics

Fall. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.

Individualized reading and research in the application of biomechanics to clinical cases.

490B Independent Study in Biomaterials

Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.

Individualized reading and research in the application of biomaterials.

491 Special Topics

Fall, Spring. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

Special topics in biomedical engineering or bioengineering.

495 Tissue Mechanics

Spring. 3(3-0) Interdepartmental with Mechanical Engineering. Administered by Mechanical Engineering. P:M: (ME 222) R: Open only to students in the College of Engineering. SA: MSM 441

Application of solid mechanics to understanding mechanical responses of biological tissues. Microstructure and biological function for soft and hard connective tissues and muscle.

496 Biodynamics

Fall. 3(2-2) Interdepartmental with Mechanical Engineering. Administered by Mechanical Engineering. P:M: (ME 361) R: Open only to students in the Engineering Mechanics major.

Fundamentals of motion analysis of human movement and its application to the study of function and dysfunction of the musculoskeletal system. Solution methods of the inverse dynamics problem.

497 Biomechanical Design

Spring. 3(3-0) Interdepartmental with Mechanical Engineering. Administered by Mechanical Engineering. R: Open only to juniors or seniors in the College of Engineering. SA: BME 491A, MSM 445

Biomechanical product design with application to people or animals. Synthesis, prototyping, and analysis of designs. Project management. Market research.