UCONN | THE GRADUATE SCHOOL

UCONN HEALTH BIOMEDICAL SCIENCE PROGRAM

Skeletal Biology & Regeneration

Area of Concentration

What you should know about our program

- Explores the cellular, molecular and genetic processes related to skeletal development, skeletal diseases, injuries and regeneration.
- A highly multi-disciplinary program that includes over 30 research labs at UCONN
- A vibrant educational environment that includes scientific symposia, seminar series, student awards, and opportunities for outreach

Research Areas

Stem Cells
Cartilage and Bone Differentiation
Osteoporosis
Bone Remodeling
Bone Fracture Repair
Biomaterials & Scaffold Design
Regenerative Engineering
Osteoarthritis
Biomechanics
Biomineralization
Aging
Limb and Craniofacial Development
Oral Infection and Biofilms
Cancer Biology
Osteosarcoma and Endocrine Tumors
Drug and Stem Cell Delivery
Rare Skeletal Diseases
Osteoimmunology

To Learn More, check out our website!
https://bit.ly/35zCanA

Welcome!

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On behalf of the faculty of Skeletal Biology & Regeneration (SBR), welcome to UCONN Health!

It's an exciting time to be in the field of skeletal biology and tissue regeneration. Scientific breakthroughs in a variety of disciplines such as stem cell biology, genomics, imaging, and tissue engineering have revolutionized our understanding of the human skeleton.

Our laboratories make use of cutting-edge technologies to study the musculoskeletal system including live cell and tissue imaging, single-cell RNA sequencing, human iPSC models of disease, novel biomaterials to facilitate drug delivery and modulate the immune system and more. We are also leaders generating genetically engineered mouse models to study the musculoskeletal system that are used worldwide.

A common misconception of our program is that a background in skeletal biology is required to be successful. In reality, our work in SBR integrates many fields including: immunology, epigenetics, engineering, molecular and cell biology, bioinformatics and much more. We view students from outside our field as a strength!

Our well-funded faculty are internationally recognized leaders in skeletal biology, stem cells, biomaterials and biomedical engineering. We are also leaders at the University in mentoring and teaching.

Please contact us if you have any questions. We look forward to meeting you!

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- **Coursework tailored to meet *individual* goals and interests.**
- **Basic graduate school requirements plus choice of >20 diverse offerings.**
- ***In-depth specialty courses:* Skeletal Biology or Craniofacial & Oral Biology**
- **Cross-listed courses available from *UConn's Bioengineering Program***
- **Weekly multidisciplinary journal club**
- **Opportunity to compete for training grants**

Successful future careers:
Our PhD graduates have successful careers in diverse fields and institutions, working in academia, industry, health care and government, performing basic and clinical research, education, and outreach.

Skeletal Biology and Regeneration has >30 active faculty members

Some of the faculty accepting rotation students for 2025-2026 include:

Ernesto Canalis, M.D. Professor of Orthopedic Surgery and Medicine. Role of Notch and Nuclear factor of activated T cells (NFAT) in osteoblasts *in vivo* and *in vitro, and in disease models* for Hajdu Cheney Syndrome and Lateral Meningocele Syndrome.

Madison Doolittle Ph.D Assistant professor, Center for Regenerative Medicine and Skeletal Development, Biology of aging, Senescence and Osteoimmunology

Cato Laurencin, M.D., Ph.D. University Professor, Van Dusen Distinguished Endowed Professor of Orthopaedic Surgery, Professor of Craniofacial Sciences, Professor of Chemical and Biomedical Engineering and Materials Science. Regenerative Engineering using biomaterials, stem cells, physics, and developmental biology.

Danielle Rux, Ph.D. Assistant Professor of Orthopedic Surgery. Mechanisms of synovial joint and articular cartilage morphogenesis, disease and regeneration.

Tannin A. Schmidt, Ph.D. Associate Professor of Biomedical Engineering. Basic and translational bioengineering of proteoglycan 4 (lubricin) at biointerfaces and biomaterials.

Ali Tamayol, Ph.D. Associate Professor or Biomedical Engineering. Microengineered scaffolds carrying patient-specific cells and growth factors for the treatment of volumetric muscle loss.