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BIOM 7432/8432: Advanced Biomaterials (Syllabus)

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University of Memphis

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UM BIOM 7432/8432
ADVANCED BIOMATERIALS
Fall 2022

Instructors: Gary L. Bowlin, Ph.D.
Phone: 678-2670

Office Hours: M & W 9-10 AM, Room ET119D
Email: glbowlin@memphis.edu

Class: 3 credit hours **Meeting:** Mon. & Wed. 12:40pm – 2:05pm **Class Location:** ET 238

Text: No textbook.

Handouts: The course content will be supplied as in-class handouts or electronic form.

Course Description: The course will consist of a sequence of lectures that cover the complex host response associated with biomedical material/device implants. The focus will be on designing implants to invoke regeneration and integration and not fibrosis.

Possible Topics Covered:

- Host Response Overview
- In Vivo* Models for Host Response Testing
- Electrospinning and Electrospun Clusters
- Near-field Electrospinning: Potential and Challenges
- Neutrophils Role in Matrix Reprogramming and Angiogenesis
- Macrophage – Wear Debris
- Chitosan-derivatives – Synthesis and Applications
- Hyperthermia Drug Delivery
- Natural-derived Biofilm Busters
- Potential of Manuka Honey
- Immune System Modulation/Control

Assessment:

Final course grades will be determined as follows:

Attendance/Participation	15%
Project Reports and Presentations	35%
Mid-term Exam	25%
Last Exam	25%

Grading Scale: 100-90 A, 89-80 B, 79-70 C, 69-60 D, Below 59 F

Project: Students will work on the area of interest pertaining to a focus aspect of biomaterial host response.

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<http://www.memphis.edu/studentconduct/pdfs/csrr.pdf>