**COURSE SYLLABUS**

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| **Course Title**：Nano-biomedical Material |
| **Credits / Hours** | 3/3 | **Course Number** |  | **□Required ■Elective** |
| **Course Description**This course covers the principles and applications of nano-biomedical materials. Topics include the synthesis, characterization, and evaluation of different types of nano-biomaterials and their interactions with biological systems. The course also discusses the latest advances in the field and their potential for biomedical applications.**Course Goals and Objectives:**By the end of the course, students should be able to:1. Understand the principles of nanomaterials synthesis and characterization techniques.
2. Describe the properties and applications of different types of nano-biomaterials, including metallic, polymeric, and ceramic materials.
3. Understand the interaction between nano-biomaterials and biological systems, including cell adhesion, proliferation, and differentiation.
4. Evaluate the safety and biocompatibility of nano-biomaterials in medical applications.
5. Analyze the latest advances in the field of nano-biomedical materials and their potential for future applications.

Textbook: Prepared by professors and other references (papers) |
| **Course Topics** |
| **Topic** | **Content** |
| Topic 1 | Introduction to nano-biomedical materials |
| Topic 2 | Nanomaterials synthesis techniques |
| Topic 3 | Characterization techniques for nano-biomaterials |
| Topic 4 | Metallic nano-biomaterials |
| Topic 5 | Polymeric nano-biomaterials |
| Topic 6 | Ceramic nano-biomaterials |
| Topic 7 | Nano-biomaterials for drug delivery |
| Topic 8 | Nano-biomaterials for tissue engineering |
| Topic 9 | Biocompatibility and safety of nano-biomaterials |
| Topic 10 | Regulatory issues in nano-biomedical materials |
| Topic 11 | Future directions in nano-biomedical materials |