**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 | | |