

O553.5332 Drug-Eluting Biomedical Devices

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Course Outline

<u>Lecture</u>	<u>Topic</u>
1	Introduction: Principles of drug delivery.
2-4	Bioresorbable polymers for drug-eluting devices and their degradation mechanisms: polyhydroxy acids, polyortho esters, polyanhydrides and natural polymers.
5-6	Methods for preparation of drug-eluting systems: solution processing, melt processing and emulsion-based techniques.
7-8	Mechanisms of drug release from polymeric matrices and related mathematical models.
9-10	Antibiotic-eluting systems for various applications.
11-12	Scaffolds for tissue regeneration with controlled release of bioactive agents.
13	Visitor's lecture.

Recommended literature:

1. "Controlled Drug Delivery – Challenges and Strategies", Editor: Kinam Park, ACS, 1997.
2. "Handbook of Experimental Pharmacology 197: Drug Delivery", Edited by Monika Schafer-Korting, Springer, 2010.
3. "Biomaterials Science – An Introduction to Materials in Medicine", Edited by: Buddy D. Ratner, Allan S. Hoffman, Frederick J. Schoen and Jack E. Lemons, Academic Press, San Diego, 2000 (or newer Ed).
4. "Active Implants and Scaffolds for Tissue Regeneration", Edited by Meital Zilberman, Springer, 2011.
5. Review articles.

Course Requirements:

Final exam – 100%