Biomolecular Sensing Technologies

Day: January 27th, 2022

Start time: 15:00, Thursday, January 27th, 2022

End time: 15:00, Friday, January 28th, 2022 (24 hrs)

Exam Submission must be sent by e-mail to me, ksode@email.unc.edu, prior to 15:00 January 28th, 2022.

**Preface:** The goal of this exam is to evaluate students’ abilities of, understanding and knowledge of the methods, devices, systems, principles, constituents and significances to identify, detect, analyze and monitor biological molecules, biological systems which are essential information for diagnosis or to understand biological phenomenon to create future technologies dedicating for the improvement of human health and quality of life. These include the understanding of past, current and future perspectives of “Biosensors” and in vitro diagnostic. In the other aspect, the exam will also evaluate the abilities to imagine, design and propose devices/principles for the particular biomolecules on demands, specifically from the point of view of selecting/designing appropriate biomolecules to detect the targets. The exam will also evaluate the abilities to provide constructive criticisms toward existing technologies and published research articles relating to the abovementioned topics.

This exam encourages students to understand the principle of biosensors, representative configurations specifically biosensing elements to detect target molecules, and application of biosensors, and in vitro diagnostics.

You should be fluent in the following keywords prior to taking the exam:

Biosensors
Enzyme sensors
Immuo sensors
Aptamer sensors
Glucose sensors (as the representative biosensing technologies in medical fields)
Enzymes (as biosensing elements)
Antibodies (as biosensing elements)
Aptamers (as biosensing elements)
Synthetic receptors (as biosensing elements)
Cells (as biosensing elements)

**References:** Basic text book on biosensors, journal research articles including relevant review articles that have been posted along with this summary of the exam.