



## **AB304 Nanobiotechnology Applied for Biomedicine**

**Term: 2017 Spring**

**Credits:**

**Course prerequisites:** AB301

**Instructor:** Ta Van Quang, PhD

**Class times and room:** Tuesday at 13:30-16:30, room 110

### **Contact and office hours**

Student can contact through email at [quang.ta@ttu.edu.vn](mailto:quang.ta@ttu.edu.vn), or visit office from 8:00 – 12:30 Tuesday, and Thursday.

### **Course description**

The objective of the course is to endow an overview of the fundamental concepts of modern biotechnology and to discuss the risks and benefits of its application in the areas of biomedicine.

### **Learning outcomes**

By the end of the course, students will be able to have the knowledge as given below:

1. Students who fulfill the course can remind information from previous subjects, such as molecular cell biology, biochemistry, and cell biology.
2. The course explains for students the application of nanobiotechnology in medicine.
3. The course provides knowledge that students who fulfill the course can develop the ideas and methods to solve the problems in medicine.

### **Required course materials**

- *Nanomedicine* by Kenneth A. Howard and Thomas Vorup-Jensen Dan Peer 1<sup>st</sup> edition. ISBN: 9781493936328.
- Internet articles.

### **Expectations**

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## Grading

Grading can be affected by the quality of academic work, attendance, and participation, as detailed in this syllabus. Grading follows the university guidelines. Refer to the Student Handbook for more information on letter grades and GPA.

## Self-study

Students are expected to self-study for 2 hours after every 1 hour of class time in order to qualify for academic credits. Self-study includes reading required texts, reading and viewing supplementary materials, finishing various assignments, and may include conducting original research for the course

Credits attempting	Class hours per week	Self-study hours per week
12	12	24
15	15	30
18	18	36
21	21	42

## Attendance

Students are expected to attend at least 70% of the class sessions in order to qualify for academic credits. Students may be subject to grade reduction for unapproved absences greater than 5% of the class sessions. Approved absences are at the discretion of the course instructor (Student Handbook 4.14).

Credits	Session 1 in minutes	Session 2 in minutes	Weeks	Percent of course per session	Maximum absences
1	60	0	14	7%	4
2	60	60	14	4%	8
3	90	90	14	4%	8
4	120	120	14	4%	8

## Original work

Every student in the course should understand the university's policy on cheating and plagiarism, and must sign a statement of academic honesty. Regarding cheating, "any student found cheating on an examination, for example, by using unpermitted materials or by copying from another student, will either be dismissed from the university or will receive a grade of 'F' (fail) for the course." Regarding plagiarism, "Plagiarism means copying the work of someone else and presenting it as your own.... Students may not use more than 25% of knowledge on the Internet for homework.... If so, he or she will receive an F" (Student Handbook 4.18-4.19).

## Diversity and discussion

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Students are encouraged to participate in discussion. Tan Tao University “encourages freedom of thought and expression and seeks to foster tolerance and respect for diversity and dialogue” (University mission statement).

### Special circumstances

If any student feels he/she has conditions that may affect success in the course, the student should discuss this immediately with the course instructor, dean, and/or the registrar office, without delay. These conditions include, but are not limited to, physical disability, external learning environment, and unavoidable scheduling conflicts.

### Course evaluation

Toward the end of this course, students will have the opportunity to provide feedback. The evaluation seeks to determine your perceived validity of the course, that is, its relevancy. How you perceive the reliability of the course and its information is also important. Finally, you will be asked about your perception of the course’ fairness, that is, whether the course expectations were clearly communicated and your work was impartially assessed.

### Assessments

#	Assessment	Weight
1	Attendance & Participation	10%
2	Assignment	30%
3	Final Examination	40%
4	Journal Paper Presentation	20%
	TOTAL	100%

### Assessment 1 description and marking scheme

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Students who attend greater than 95% of class sessions will get 10% of total grade.

### **Assessment 2 description and marking scheme**

Students will complete assignment that given from lecturer.

### **Assessment 3 description and marking scheme**

The final exam will be marked by answer key. It will cover all information of Nanobiotechnology in medicine subject that student obtained from class sessions.

### **Assessment 4 description and marking scheme**

Students will present topics that they selected from 1<sup>st</sup> week. Presentation file should be submitted in mail at least 1 day before due date.

### **Timetable**

<b>Wk</b>	<b>Date</b>	<b>Content and tasks</b>	<b>Outcome</b>
1	02/01-06/01	Introduction to Nanobiotechnology	1,2
2	09/01-13/01	Nanomedicine	1,2
3	16/01-20/01	Complement Regulators and Inhibitors in Health and Disease	1,2,3
4	06/02-10/02	Complement Sensing of Nanoparticles and Consequences	1,2,3
5	13/02-17/02	The Nanoscience of Polyvalent Binding by Proteins in the Immune Response	1,2,3
6	20/02-14/02	Microfluidics-based Single Cell Analytical Platforms for Characterization of Cancer	1,2,3
7	27/02-03/03	Nanotheranostics and In-Vivo Imaging	1,2,3

8	13/03-17/03	Targeting Cancer Using Nanocarriers	1,2,3
9	20/03-24/03	The Importance of Particle Geometry in Design of Therapeutic and Imaging Nanovectors	1,2,3
10	27/03-31/03	Delivery of Peptides and Proteins to the Brain Using Nano-Drug Delivery Systems and Other Formulations	1,2,3
11	03/04-07/04	Polymer-Based DNA Delivery Systems for Cancer Immunotherapy	1,2,3
12	10/04-14/04	The Application of Nanotechnology for Implant Drug Release	1,2,3
13	17/04-21/04	Topics in nanomedicine	1,2,3
14	24/04-31/04	Topics in nanomedicine	1,2,3
15	01/05-05/05	Final Exam	

### Supplementary materials

#### Academic and ethical writing

##### Plagiarism

- [Plagiarism: What it Is and How to Recognize and Avoid It](#) from Writing Tutorial Services at Indiana University
- [Student Plagiarism in an Online World](#) from Prism Magazine, published by the American Society for Engineering Education
- [Plagiarism in Colleges in USA](#) by Dr. Ronald B. Standler

##### Writing style

- [Online Writing Lab @ Purdue University](#) on how to write in APA and MLA styles.

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- Online Writing Lab [YouTube channel](#)
- Video on [credibility of websites](#)
- [Citation machine 1](#) helps to create in-text citations and reference pages
- [Citation machine 2](#) helps to create in-text citations and reference pages
- [Video on how to use in-text citations](#)

#### Reading and research

- [The Library of Congress](#) houses more than 126 million books, manuscripts, newspaper titles, maps, and other printed materials. The collections include nearly 20 million books, 2.6 million recordings, 12 million photographs, 4.8 million maps, and 56 million manuscripts. This site will give you access to several online primary resources that are essential to learning about the United States.
- [US National Library](#) will give you search tool for scientific articles.