

You Do Not Need to write down the following infos because all the following slides and all lecture notes will be uploaded at the link: <http://itbe.hanyang.ac.kr>

Prof. Dr. Klaus Heese

Online access to lecture notes via:

----> <http://itbe.hanyang.ac.kr>

-----> go to Teaching -----> Autumn / Fall Term – Klaus Heese
-----> Undergraduate -----> Cell Mol Biol BIO3035

This/today's file will be uploaded next week after closing of course registration.

Prof. Dr. Klaus Heese

Molecular and Cellular Biology

Course No: [BIO3035](#)

Credits: 3.00

Tuesday: 15:00pm – 16:30pm; Ro-# H305–208 (ITBT)

Thursday: 13:00pm – 14:30pm; Ro-# H305–208 (ITBT)

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Prof. Dr. Klaus Heese

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Biochemistry,
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BIO3035 Molecular and Cellular Biology

Structure of Course:

Lectures: about 9 subtopics over 16 weeks

Homework Assignment: Individual Homework plus Oral Presentation

Oral Presentation: about your homework, instead of Mid-Term exam

Quiz: at then end of the semester - for exam preparation & active attendance!!

Q & As: at then end of the semester - for exam preparation

Exam: (written)

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BIO3035 Molecular and Cellular Biology

Evaluation methods:

Scoring system: absolute grading

A+ : 95 – 100 %
A : 90 – 94 %
B+ : 85 – 89 %
B : 80 – 84 %
C+ : 75 – 79 %
C : 70 – 74 %
D+ : 65 – 69 %
D : 60 – 64 %
F : < 60

- 1) 10 % regular attendance
- 2) 15 % pro-active attendance during class (debate) (including Quiz and Q & As for extra points)
- 3) 45 % Individual home work + English Oral Presentation
(submission of presentation as print and ppt-file; topic to be decided later)
- 4) 30 % exam (written)

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BIO3035 Molecular and Cellular Biology

Recommended **textbook:**

Text book: Molecular Biology of The Cell, 4th edition, 2002
(also online at 'NCBI')

Authors: Bruce Alberts, Alexander Johnson, Julian Lewis,
Martin Raff, Keith Roberts, and Peter Walter.

Paperback: 1616 pages

Publisher: New York: Garland Science;

Language: English

ISBN: ISBN-10: 0815340729; ISBN-13: 978-0815340720

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Below are some basic text books which you may check later if any book is of interest for you e.g. during/after year 3.

Cell Biology text books

Text book: Molecular Biology of The Cell, (also online at 'NCBI')
Authors: Bruce Alberts, et al.

Text Book: Molecular Cell Biology, (also online at 'NCBI')
Authors: Lodish et al.

Text book: Campbell Biology
Authors: Jane B. Reece, et al.

Biochemistry text books

Text Book: Biochemistry
Authors: L. Stryer

Text Book: Biochemistry
Authors: D. Voet and J. Voet

Neuroscience text books

Text Book: Principles of neural science
Authors: Eric R. Kandel, James H. Schwartz, Thomas M. Jessell.

Text Book: Fundamental Neuroscience
Authors: Larry R. Squire, Fundamental Neuroscience.

Text Book: Neuroscience
Authors: Dale Purves.

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BIO3035 Molecular and Cellular Biology

Syllabus: ~ 7 subtopics, key words

1. General Introduction to the cell
2. Biomolecules, amino acids and proteins, 1 & 2
3. RNA, DNA, Chromosomes, Genomes (including basic control of gene expression etc; including applied molecular and cellular technologies), 1 & 2
4. Proteins and Enzymes (including structure, function, purification etc; including applied technologies), 1 & 2
5. Cell Biomembrane
6. Cell Signalling, (basic signalling pathways I-IV, cell cycle, apoptosis, cancer, pain, neuroimmunology, brain cells & signalling, vision, pain) 1-8
7. Practical biomedical molecular and cellular engineering applications (including methods such as manipulating mammalian cell functions), 1 & 2

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BIO3035 Molecular and Cellular Biology

Syllabus: ~ 7 subtopics – Lecture Notes Details:

1. General Introduction to the cell
2. Bio-Chemical Foundations & Key Molecules of a Cell : Biomolecules, amino acids, proteins, RNA, DNA
3. The Cell – From Genes to Proteins: key processes
4. Proteins: Proteins: Structure and Function
5. Basic Molecular Genetic Techniques; Visualizing, Fractionating, and Isolation of Cells
6. Cell Biomembrane: Structure and Function
7. Brain Cells
8. Cell Signalling, - G-protein signalling, Receptor Kinases, Neurotransmitters & Receptors,
9. Optional: Molecular and Cellular Signalling in Vision and/or Pain
10. Practical biomedical engineering applications: homework

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BIO3035 Molecular and Cellular Biology

Goals:

1. Getting an excellent Grade ☺
2. Getting to know the fundamental knowledge about the cellular bio-molecules, their basic structure and functions in a cell
3. Getting insight into the basic cellular signal transduction pathways, metabolic processes of proteins and genes in a cell
4. Understanding the basic molecular and cellular technologies and the potential biomedical applications of molecular and cell biology.
5. Practical biomed. engineering applications – Homework: Getting an opportunity to familiarize yourself with cellular and molecular biology, a key component of Biomedical Engineering, and getting first experience to convey such acquired expertise to other scientists (classmates) outside such fields.

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Individual Homework / English Oral Presentation

Prof. Dr. Klaus Heese

45 % Individual Homework / English Oral Presentation

(submission of presentation as ppt-file and printed version!)
(instead of midterm exam)

Topic: Biology, Life, Cell, Molecule, Engineering, BioMedical-Engineering
Prepare 1 slide with 1 figure/illustration that tells about a link between your presentation and bio (medical) engineering application such as: BioMaterial, Bio Tissue Engineering, Biomedical technology devices, Bio-Energy, ..., Bio-Food, Bio-Cosmetics, ...

Write at home for yourself 1page (figure plus text) what is described in this 1 slide. You do not need to submit this 1 page to me – but it is important for you to do it.

Final File-name: e.g. No-8-ID-20170123456-Jxxx Yzzz KYY.pptx

slides: ~ 10; on top of first slide: **on top of the slide/page-1:** e.g.

No 8: xxx Yzzz KYY, **ID:** 20170123456; **email:** kyy1234@gmail.com

Project Title:

Time: ~ 10-15min (incl. discussion / Q & A)

Date: end of semester, before exam

Language: English – but not evaluated !

Important: to do it (experience) !!

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Individual Homework / English Oral Presentation

Slide-1

BIO3035 Molecular and Cellular Biology

No 8: xxx Yzzz KYY, **ID:** 20170123456; **email:** kyy1234@gmail.com

Project Title: ...

Summary Abstract: ~ 100 words, +/- 1 figure

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Lecture notes are ready for download about 12 – 24 hours before the next lecture.

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BIO3035 Molecular and Cellular Biology

Tentative schedule: ----> <http://itbe.hanyang.ac.kr>

(may slightly change, depending on lecture progress)

Oct 23 – 27: mid term exam week;

Oct 23 – 27: time for home-work to prepare oral presentation;

Oct 27: ppt-file of oral presentation submission to: [Dong Hyun KIM lovedarren3@naver.com](mailto:DongHyunKIM@naver.com) ;

Oct 28: Dong Hyun KIM submits all files in 1 email to Prof Klaus Heese;

Nov 14: Dong Hyun KIM submits all **printed** documents in order (No of excel file) to Prof;

Final ppt-file submission:

27. Oct to Dong Hyun KIM and

28. Oct Dong Hyun KIM submits the files to Prof Heese;

Nov 16, 23, 28 (Thu, Thu, Tue): 13:00 – 14:30 / 15:00pm – 16:30pm ;

oral presentations (~ 6 persons/groups per session, depending on progress);

Nov 30 (Thu): 13:00 – 14:30 : Quiz, Q & A (**pro-active attendance!!**);

Dec 07 (Thu): 13:00 – 14:30 : Exam (1 ½ h; Ro-# H305–208 (ITBT));

oral presentation: e.g.:

Slide-1 page: on top of the page

No 8: xxx Yzzz KYY, **ID:** 20170123456; **email:** kyy1234@gmail.com

Project Title:

Summary Abstract: ~ 100 words, +/- 1 figure

Prof. Dr. Klaus Heese

출석부		학과명		학수번호		수업코드		학명				
공과대학 생명과학부		BIO3035		190035		19003		분자세포생물학				
담당교수명		Klaus Heese (외)		강의실		교수명		교수명				
		생물학기초2		9545 (외교대정관부)		--		4114 (외교대정관부)				
일	시각	과목(부) 및 학공	학년	반	성명	과제 1	과제 2	출석	휴강	기타	평가	비고
1	09:00	생물학기초2	2									
2	09:00	생물학기초2	2									
3	09:00	생물학기초2	2									
4	09:00	생물학기초2	2									
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8	09:00	생물학기초2	2									
9	09:00	생물학기초2	2									
10	09:00	생물학기초2	2									
11	09:00	생물학기초2	2									(B)
12	09:00	생물학기초2	2									
13	09:00	생물학기초2	2									
14	09:00	생물학기초2	2									
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16	09:00	생물학기초2	2									
17	09:00	생물학기초2	2									
18	09:00	생물학기초2	2									
19	09:00	생물학기초2	2									
20	09:00	생물학기초2	2									