

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 -----> Biochemistry CHM4006

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

Prof. Dr. Klaus Heese

Biochemistry

Course No: CHM4006;

Credits: 3.00

Day / Time: Wednesday & Friday: 13:30 - 15:00

Room: Ro # H305 – 201 & 208 (IT/BT)

Prof. Dr. Klaus Heese

Online access to lecture notes via:

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

-----> go to Teaching -----> Autumn / Fall Term – Klaus Heese
 -----> Undergraduate -----> Biochemistry CHM4006

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

Prof. Dr. Klaus Heese

Name: Prof. Dr. HEESE, Klaus (Germany)

Office: Graduate School of Biomedical Science & Engineering,
FTC, 12th floor, Room-No: 1209-15

Teaching: General Biology, Cellular and Molecular Biology,
Biochemistry,

Research: Neuroimmunology

Office hours: Consultation: upon request via e-mail-
appointment and/or after class

E-mail: klaus@hanyang.ac.kr

Web: <http://itbe.hanyang.ac.kr>
<https://hanyang.academia.edu/KlausHeese>

Prof. Dr. Klaus Heese

CHM4006 Biochemistry

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)

Prof. Dr. Klaus Heese

CHM4006 Biochemistry

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)

Prof. Dr. Klaus Heese

Recommended text book:

Text book: Biochemistry
Authors: Donald Voet, Judith G. Voet
Hardcover: 1520 pages
Publisher: Wiley; 4th edition (November 2010)
Language: English
ISBN: 978-0-470-57095-1

Further recommended reference books:

Text book: Biochemistry
Authors: Jeremy M. Berg, John L. Tymoczko, Lubert Stryer,
Hardcover: 1026 pages
Publisher: W. H. Freeman & Co Ltd; 6th revised edition 2006
Language: English
ISBN-10: 0716787245
ISBN-13: 978-0716787242 (ISBN)

Text book: Biochemistry
Authors: Reginald H. Garrett, Charles M. Grisham
Hardcover: 1280
Publisher: Brooks Cole; 5th edition (December 2011)
Language: English
ISBN-10: 1133106293
ISBN-13: 9781133106296

Text book: Biochemistry
Authors: Reginald H. Garrett, Charles M. Grisham
Paperback: 1184
Publisher: Brooks Cole; 5th edition (2012)
Language: English
ISBN-10: 1133106293
ISBN-13: 9781133106296

Prof. Dr. Klaus Heese

CHM4006 Biochemistry

Syllabus (course contents): key words

- 1) General Introduction
- 2) Biomolecules, amino acids, proteins, hormones
- 3) Enzymes (action, mechanism)
- 4) Cellular Energetics (Cell Metabolism (glucose, fat, protein) & Cell Thermodynamic and Cell (brain) Energy)
- 5) Photosynthesis
- 6) Bioenergy
- 7) Practical bio(medical) engineering applications including Bio-Fuel Cells and/or Bioremediation and/or Genetic Engineering and/or iPS cells

Prof. Dr. Klaus Heese

CHM4006 Biochemistry

Syllabus (course contents): lecture notes details

- 1) General Introduction
- 2) Biomolecules, amino acids, peptides, proteins, diseases
- 3) Enzymes (action, mechanisms, catalysts)
- 4) Cellular Energetics: Cell Thermodynamic (Gibbs Free Energy etc.), Transport of ions and small molecules across cell membranes (key energy (ATP)-dependent membrane protein, membrane transporters), Cell Energy Metabolism (carbohydrates & glycogen, glucose, fat, protein, ATP),
- 5) Bio-Energetics & ATP: ATP and Cell Respiration, Cellular Metabolism & Energetics, Fat metabolism
- 6) Photosynthesis
- 7) Optional: Bioenergy – BioFuel Cells
- 8) Optional: Bioremediation
- 9) Practical biomed. engineering applications – Homework

Prof. Dr. Klaus Heese

CHM4006 Biochemistry

Goals

1. Getting an excellent Grade ☺
2. Getting to know the fundamental knowledge about thermodynamic principles, biomolecules, protein structure and functions, mechanisms of enzyme actions, metabolism, and genetic information in a cell
3. Getting to know the cellular bio-molecules, their basic structure and function in a cell
4. Getting insight into the basic cellular signal transduction pathways in terms of cell energy, metabolic processes of proteins, carbohydrates and fatty acids in a cell
5. Understanding the classification of the key catalysts involved in metabolic processes.
6. Recognize and understand the biomedical applications of biology/chemistry (biochemistry) in the (biomedical) engineering area
7. Practical biomed. engineering applications – Homework: Getting an opportunity to familiarize yourself with biochemistry, a key component of Biomedical Engineering, and getting first experience to convey such acquired expertise to other scientists (classmates) outside such fields.

Prof. Dr. Klaus Heese

Individual Homework / English Oral Presentation

Prof. Dr. Klaus Heese

45 % Individual home work / English Oral Presentation
(submission of presentation as ppt-file and printed version!)
(instead of midterm exam)

Topic: Biology, Life, **Chemistry, Biochemistry, Cell, Molecule, Engineering**
Prepare 1 slide with 1 figure/illustration that tells about a link between your presentation based on biochemistry 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-3-ID-20170123456-Jxxx Yzzz KYY.pptx

slides: ~ 10; on top of first slide: **on top of the slide/page-1: e.g.**
No 3: Jxxx 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) !!

Prof. Dr. Klaus Heese

Individual Homework / English Oral Presentation

Slide-1

CHM4006 Biochemistry

No 3: Jxxx Yzzz KYY, ID: 20170123456; email: kyy1234@gmail.com

Project Title: ...

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

Prof. Dr. Klaus Heese

Online access to lecture notes via:

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

----> go to Teaching ----> Autumn / Fall Term – Klaus Heese
----> Undergraduate ----> Biochemistry CHM4006

This file will be uploaded next week after closing of course registration.

Prof. Dr. Klaus Heese

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

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

Prof. Dr. Klaus Heese

CHM4006 Biochemistry

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: Lee ga yeon; ky960815@naver.com ;
Oct 28 : Lee ga yeon submits all files in 1 email to Prof Klaus Heese;
Nov 01: Lee ga yeon submits all **printed** documents in order (No of excel file) to Prof;

Final ppt-file submission:
27. Oct to Lee ga yeon and
28. Oct Lee ga yeon submits these ppt files to Prof Klaus Heese;

Nov 15, 17, 22 (Wed/Fri): 13:30pm – 15:00pm: Oral presentations;
 (about 6 persons / groups per session; depending on progress);
Nov 29 (Wed): 13:30 – 15:00pm: Quiz, Q & A (pro-active attendance!!);
Dec 01 (Fri): 13:30 – 15:00pm: Exam (1 ½ h; Ro-# H305–208 (IT/BT));

oral presentation: e.g.:
 Slide-1 page: on top of the page
No 3: xxx Yzzz KYY, ID: 20170123456; email: kyy1234@gmail.com
Project Title:
 Summary Abstract: ~ 100 words, +/- 1 figure

Prof. Dr. Klaus Heese

출석부

과목명	교수명	학수번호	수강인원	학점								
생물화학	클라우스 헤세	CHM4006	10620	3								
과목시간	Klaus Heese (외) 생화학(기)은 XPS (비교인정용) -- 13:30 (비교인정용) --											
순번	이름	학점(학) / 동점수	학번	성명	출석	결석	결재	휴학	휴강	기타	평가	비고
1	김정민	생물공학전공	4									
2	김정민	생물공학전공	5									
3	김정민	생물공학전공	3									
4	김정민	생물공학전공	3									
5	김정민	생물공학전공	3									
6	김정민	생물공학전공	3									
7	김정민	생물공학전공	3									
8	김정민	생물공학전공	3									
9	김정민	생물공학전공	3									
10	김정민	생물공학전공	3									
11	김정민	생물공학전공	3									
12	김정민	생물공학전공	3									
13	김정민	생물공학전공	3									
14	김정민	생물공학전공	3									
15	김정민	생물공학전공	3									
16	김정민	생물공학전공	3									
17	김정민	생물공학전공	3									
18	김정민	생물공학전공	3									
19	김정민	생물공학전공	3									
20	김정민	생물공학전공	3									

Next lecture: Wednesday 06.09.2017 at 13:30

Thereafter, 2 Options:

a) Lectures as usual Wednesday and Friday:
 13:30 ~ 14:50 / 13:30 ~ 14:50

b) Intensive lecture on Wednesday only:
 e.g. 13:30 ~ 14:45

(for a) and b): lectures are given without break
 (the other day, study (e.g. in groups) at home)

today: Friday 01.09.2017 at 13:30
 next lecture: Wednesday 06.09.2017 at 13:30.
 next lecture: Wednesday 13.09.2017 at 13:30.