

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 -----> Spring Term 2019 – Klaus Heese
-----> Undergraduate -----> General Biology BNG2003

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

Prof. Dr. Klaus Heese

General (Comparative) Biology

Course No: BNG2003

Credits: 3.00

Wednesday: 13:30pm – 15:00pm; Ro-# H305-208

Thursday: 14:30pm – 16:00pm; Ro-# H305-208

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: UG: General Biology, Cellular and Molecular Biology, Biochemistry,
GS: Bio-Medical Neuro-Tissue Engineering, Neuropsychology, Cognitive Neuroscience

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>

Prof. Dr. Klaus Heese

BNG2003 General (Comparative) 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 the end of the semester - for exam preparation & active attendance !!

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

Exam: (written) - _at the end of the semester

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BNG2003 General (Comparative) 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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BNG2003 General (Comparative) Biology

Recommended Text Books:

1)

Text book: Campbell Biology

Authors: Jane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Robert B. Jackson

Paperback: 1464 pages

Publisher: Benjamin Cummings; 9 edition (October 7, 2010)

Language: English

ISBN: ISBN-10: 0321558235; ISBN-13: 978-0321558237

2)

Text book: Principles of Life

Authors: David M. Hillis, David Sadava, H. Craig Heller, Mary V. Price

Hardcover: ~908 pages plus Appendix

Publisher: Sinauer Associates, Inc., W. H. Freeman and Company

Language: English

ISBN: ISBN: 978-1-4292-5721-3 (casebound)

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Recommended Text Books:

3)

Text book: Life: The Science of Biology

Authors: David Sadava, David M. Hillis, H. Craig Heller, May Berenbaum

Paperback: 1267 pages

Publisher: W. H. Freeman; Tenth Edition edition (December 10, 2012)

Language: English

ISBN: ISBN-10: 1429298642; ISBN-13: 978-1429298643

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Below are some **other 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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BNG2003 General (Comparative) Biology

Syllabus - subtopics: Key words

1. General Introduction into Biology and Biochemistry of Life
2. The Cell
3. Genetics
4. Evolution
5. Bacteria, Archaea, Fungi
6. Plant
7. Animal
8. Ecology
9. Practical bioengineering applications

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BNG2003 General (Comparative) Biology

Syllabus - Subtopic – Lecture Notes Details:

1. General Introduction into Biology and Biochemistry of Life and Evolution
2. The Cell: 2a: Chemical Foundations of Biology, 2b: Water, 2c: Carbon, 2d: Molecules of a Cell
3. The Cell: a tour of a cell and its sub-units
4. Cell Membrane Structure & Function
5. An Introduction into Cell Metabolism
6. Cellular Respiration
7. Cell Communication & Signalling
8. The Cell Cycle
9. Meiosis and Life Cycles
10. Genetics: From Genes to Proteins
11. The Immune System
12. Viruses and Bacteria Plant
13. Plants, Photosynthesis, Fungi
14. Optional: Ecology
15. Practical biomed. engineering applications – Homework

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BNG2003 General (Comparative) Biology

Goals:

1. Getting an excellent Grade 😊
2. Getting to know the fundamental knowledge about biology as the major part of the life sciences
3. Getting insight into the intricate systems of the basic unit of life, the cell
4. Understanding the basic principles of biology such as: life, cell (molecular and cell theory), development, evolution, genetics, homeostasis, energy, phylogenies, species, and ecology.
5. Practical biomed. engineering applications – Homework: Getting an opportunity to familiarize yourself with general biology as the study of life, the 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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Understanding and following the instructions
on the next slides is the key in order to be
able to secure a B or A.

Individual Homework / English Oral Presentation

Please prepare 2 students per 1 group !

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45 % Individual Homework / English Oral Presentation

(submission of presentation as ppt-file and printed version!)
(instead of midterm exam); please prepare 2 students per 1 group !
(each student submits a ppt file plus printed file !!!)

Topic: Biology, Life, Cell, Engineering, Application of your selected topic in e.g. medicine.

Prepare also at the end a final 1 summary slide with 1 figure/illustration that tells about a link between your oral presentation (containing about 10 slides) 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 1 page (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: 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

BNG2003 General (Comparative) Biology

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

(please write here below also your group partner:

e.g.: No 11: Aaaa Bbbb CCC, ID: 201707891011; email: abc1234@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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Tentative schedule: ----> <http://itbe.hanyang.ac.kr>

(may slightly change, depending on lecture progress)

April 15 – 19: mid term week; home-work week: oral presentation preparation; and/or

April 22 – 26: mid term week; home-work week: oral presentation preparation;

May 04: ppt-file of oral presentation submission to: **Bo Kyung WI**

dnlqhrud981014@gmail.com

May 06: Bo Kyung WI submits all files in 1 email to Prof Klaus Heese;

May 08: Bo Kyung WI submits all **printed** documents in order (No of excel file) to Prof

Final ppt-file submission:

04th May to Bo Kyung WI and

06th May Bo Kyung WI submits the ppt-files to Prof Heese;

May 15, 22, & 16 (Wed & Thu): 13:15 – 15:00pm: oral presentations;

(about 6 persons / groups per day / session; depending on progress);

May 29/30 (Wed/Thu): 13:15 – 15:00pm: Quiz, Q & A (pro-active attendance!!);

June 05 (Wed): 13:15 – 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: Axxx Bzzz CYY, **ID:** 20170123456; **email:** abc1234@gmail.com

Project Title:

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

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