

## General BCCB I (520101) - Fall 2010

# Welcome to General Biochemistry and Cell Biology!

This sheet contains essential information about the course. Please read it carefully.

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**You've come to the right place. The aim of this course** is to give you a general understanding of what Biochemistry and Cell Biology is about and why this is such a **fascinating** field that many people dedicate their professional life to it. We will go through the functions of a cell, from the seemingly simple (what is it made of? where does it get its energy from? how is information inherited?) to the complex (how does it move? how does the nervous system work?). On the way, we hope that you will learn how to extract information from books and to critically assess it, to ask scientific questions, to identify interesting problems (and perhaps your own future area of specialization), and to understand how some of the most exciting experiments in the history of life science were done. We're very excited about life science, and we hope that this course will change your life and get you excited about it, too.

The course is conceived to run for an entire year. The second half (General BCCB II, 520102) is taught by Dr. Susanne Illenberger.

### **Recommended Books:**

The course does not use one single textbook, so we won't be 'doing chapters'. The material treated in class is relevant for the exams. You will find that having your own books, and doing some background reading, is necessary if you are serious with succeeding in the course.

For students of majors other than BCCB who are unlikely to take a life sciences course after this, or to people who are scared of big books, I recommend *The World of the Cell* (Becker et al., publ. Benjamin Cummings)

For students in the BCCB major, I recommend the Biochemistry book, *Principles of Biochemistry* (Horton et al., Prentice Hall) as a biochemistry book and *Essential Cell Biology* (Alberts et al., publ. Garland) as cell biology book.

Students of BCCB will buy the following books in the second and third year. They are excellent books but too detailed for most people right now; they may make it difficult for you to find the relevant basic information. If you're not scared of that, go and buy them now!

- Cell Biology:
  - *Molecular Biology of the Cell* (Alberts et al., publ. Garland), or
  - *Molecular Cell Biology* (Lodish et al., publ. W.H. Freeman).
- Biochemistry:
  - *Lehninger's Principles of Biochemistry* (Nelson and Cox, publ. Worth)
  - *Biochemistry* (Metzler, publ. Harcourt; 2 volumes), or
  - *Biochemistry* (Berg, Tymoczko, Stryer, publ. W.H. Freeman).

**Saving money on books:** In general, for this course, you do not have to have the latest edition of a book, so you could buy a used copy from an older student, Amazon, or Ebay.

### **Course web site:** (at [www.faculty.iu-bremen.de/springer/GenBCCB](http://www.faculty.iu-bremen.de/springer/GenBCCB))

On the course web site, you will find all course resources:

- this introduction and the syllabus of the course (the syllabus may be altered during the course, so watch out)
- the lecture slide files (see below)
- any additional material mentioned in the lecture (e.g. movies, historical documents, practice exams)
- the chemistry text, "Fundamental Chemistry for the Life Sciences"
- information about the final exam.

I can provide some material in printed form if you do not yet have a laptop. Talk to me.

### **Lecture slide files:**

The most important resource is the course are the lecture slide files. They contain:

- The slides of the presentation in PDF format, with added notes.

- Basic and advanced questions that cover the respective lecture and that should serve as a guide to your repetition work;
- "Actual exam questions" - questions from actual midterm and final exams that have covered this area in the past; and
- "Further exploration" - a collection of links and information for those interested to know more (this is not exam-relevant material).
- Additional material from time to time.

### **What you need do to succeed in the course:**

- **Prepare** before class by reading the book chapters corresponding to the upcoming class. You will not fully profit from the classes unless you know in advance what we are talking about, and you won't be able to ask qualified questions. It is clear to me that you can't always do this but really – the more you read in advance, the better.
- **Take notes** during class. The notes on the slides are brief. The use of laptop computers is not allowed during class - it distracts you and others.
- After class, go through your notes. Identify things that you have not understood. Read up on these in the textbooks, in additional books from the library, or on the internet. If you have missed a class, get the notes. If you have problems, get help. Then **write up** the entire contents of the class in its "understood" form.
- At the end of each lecture file, you will find **comprehension questions**. Do as many as you can. Talk to colleagues about the solutions. Very important: **form a small group of students** who discuss the questions every week. Try to solve some hard questions, and think!
- Go to the **tutorial sessions** held by the course assistant. Ask your questions there.
- **Work continuously** throughout the semester - there is no time to catch up with all the material just before the finals. (Ask the second years if you don't believe me.) The quizzes (see below) will help you work continuously.

### **How to get help if you have problems with the material:**

- Try to **isolate the problem** by identifying a **specific question** that you have. "I didn't understand any of this" is not good enough.
- **Read up** on your specific question in the **textbooks**, in additional books from the library, or on the internet.
- **Ask your fellow students** from the course, or second and third years. Get together a group of students to regularly work together on difficult issues.
- The course assistant holds **tutorial sessions** every week. Drop in and ask questions about the lecture.
- As a last means - ask the instructor. Come to the office hours or make an appointment. Please come prepared and with specific questions.

### **Grading will be based on:**

- **Quizzes**, held every Tuesday at the beginning of class (ten minutes). They make up 40% of the final grade. The quizzes usually have three questions. One of the questions is "public" (i.e., it will be known to you in advance - you can find it in the lecture slides of the previous lecture).
- A written **midterm** examination (see the syllabus for the date). Many midterm questions are taken from a list that is known to you in advance. The midterm contributes 30% to the final grade.
- A **final exam**. This contributes 30% to the final grade.
- The total course grade is computed from the average of the percentages in each area.

### **Absences from the course, medical excuses, and retake policy:**

- Presence in the lecture is not mandatory. If you miss a quiz, it will be graded zero points. You can achieve six points in each quiz. At the end of the semester, each student receives six extra points as a donation, i.e., you can miss one quiz without endangering your grade at all.
- If you miss a quiz for a **medical reason** you must submit a doctor's certificate to the **registrar** (not to the instructor). The quiz is then graded "pass" (meaning it will not be taken into account when the average grade from the quizzes is calculated). I will never grant any quiz retakes. If you miss four or more quizzes for certified medical reasons I may ask for an extra oral exam at the end of term.
- If you miss the midterm for a certified medical reason it will be graded "pass" (no retakes).
- If you miss the final for a certified medical reason: the date for the retake is in the first week of the Spring term. A flight booking is not an excuse for missing the final or the retake, so make sure your Christmas flight home is after the end of the exam period, and your flight back here is before the beginning of the Spring term.

### **Additional remark: The choice of mathematics courses for BCCB students**

There are two different first-semester mathematics courses that are acceptable for BCCB students.

- ESM1A is for students who have had mathematics all throughout high school. It introduces advanced concepts, and is essential if you would like to specialize in a subject that contains physics (e.g., biophysical chemistry).
- ESM1C is for students with little prior knowledge of mathematics. It is easier to pass but insufficient for later specialization in a subject that contains physics (biophysics, bioinformatics, ...). If you take ESM1C now you can still take ESM1A later.