



Konstanz Research
School Chemical Biology

Course
Programme
2017





How many courses do I have to take?

Four courses within three years are compulsory. Of these courses, at least two have to cover the area “Scientific Courses”, one has to cover the area “Transferable Skills & Management Courses”, and one is free of choice.

Course Areas

SC – Scientific Courses

TM – Transferable Skills & Management Courses

Which courses shall I take?

This depends on your educational background and your research interests and should be discussed with your thesis committee.

How to register?

Please register by using the link at the end of each course description on the following websites:

– chembiol.uni.kn

- training → scientific-courses
- training → transferable-skills-management-courses

Date	Title	Page	Area
09 – 10 Feb	Researching with Integrity	6	TM
16 – 17 Mar	Career Alternatives beyond the Lab	7	TM
22 – 23 Mar	Intercultural Communication	8	TM
03 – 05 Apr	Data Analysis	9	TM
04 – 05 Apr	Strategic Application for Jobs outside Academia	10	TM
06 – 07 Apr	Data Visualisation	11	TM
12 – 14 Jul	Data Science for Life Science	12	SC
19 – 21 Jul	Bioimaging	13	SC
31 Jul – 01 Aug	Information Literacy	14	SC
03 – 04 Aug	Scientific Presenting	15	TM
12 – 13 Sep	Patents in Real Life	16	TM
18 – 20 Sep	Proteomics	17	SC
25 – 29 Sep	Autumn School Chemical Biology	18	SC
04 – 06 Oct	Protein Folding	20	SC
09 – 12 Oct	Determination of Macromolecular Structures	21	SC
October t.b.d.	Frontiers in Bioimaging	22	SC
Online	MATLAB	23	–
Online	Good Scientific Practice	24	–



Researching with Integrity

09–10 February 2017, 9:00–17:00 h

We offer a joint scientific event that provides an overview of the main questions in research ethics:

- What are the valid norms in today's research ethics?
- What is misconduct in research?
- Why has researchers' misconduct (falsification, fabrication, plagiarism) become a public issue of late?
- What are the pressures that may lead scientists to practice misconduct?
- How could ethical assessment of research projects help ensure research integrity and public support to research?

The course comprises the following modules:

- Lecture in Konstanz on "Ethical Integrity" by Prof. Margit Sutrop (University of Tartu) on 08.11.2016
- Seminar in Konstanz by Dr. Anna Kusser (University of Konstanz) on 08.12.2016
- Joint workshop on 09.02.2017, University of Tartu
- International conference "Researching with Integrity" on 10.02.2017, University of Tartu

Hosts

Heike Brandstädter, Anna Kusser

Course Area

TM

Time

08.11., 08.12.: 17:00–19:00 h,
09.–10.02.: 9:00–17:00 h

Participants

max. 12

Registration

– chembiol.uni.kn/training/transferable-skills-management-courses

In cooperation with



Career Alternatives beyond the Lab

16–17 March 2017, 9:00–17:00 h

The participants will get knowledge about professional perspectives outside the lab and the typical academic career, within research institutions and in other areas of the public sector from the United Nations to local authorities, and in the private sector. They will reflect their own suitability for different career paths in the field, in science education, communication, administration and policy as well as in science management and sales. They will learn which of their specific technical and personal skills are in demand on the respective job market.

In the second part of the course exercises are offered in order to help matching your individual profiles with real job advertisements. You will extend your research focus in job markets and define further necessary steps to identify personal career goals.

Lecturer

Barbara Hoffbauer

Course Area

TM

Participants

max. 12

Registration

– chembiol.uni.kn/training/transferable-skills-management-courses/



Intercultural Communication

22 – 23 March 2017, 9:00 – 18:00 h

You will present your results at international conferences? You are aiming at international networking partners? This two-day practice- and applications-oriented workshop is designed to enable doctoral students to develop key skills in accurately identifying and dealing with typical scenarios in cross-cultural academic work interaction. Drawing on authentic complex case studies, it provides a balance of conceptual frame-working and structure to create step-by-step diagnostic tools to define culture-appropriate strategies.

The workshop is highly recommended for both German and international students, preferably in the first phase of their PhD studies.

Lecturer

Alexia Petersen

Course Area

TM

Participants

max. 12

Registration

[– chembiol.uni.kn/training/transferable-skills-management-courses/](http://chembiol.uni.kn/training/transferable-skills-management-courses/)



Data Analysis

03 – 05 April 2017, 9:00 – 17:00 h

The Data Analysis workshop focuses on data handling and implementing statistics in R using relevant examples from the life sciences. R, an open-source cross-platform software tool, has quickly become a standard tool for data analysis in many scientific disciplines. Using plenty of hands-on exercises, you will learn about different data structures and functions in R, how to manage and ask specific questions of your data, and use the results of statistical tests. R-specific functions for easy data manipulation and “Reproducible Research” will also be introduced. Participants should be comfortable with computing and be familiar with basic biostatistics. Previous programming experience is not necessary. Participants are asked to bring in their own data sets and computers for practical work.

Lecturer

Rick Scavetta

Course Area

TM

Participants

max. 12

Registration

[– chembiol.uni.kn/training/transferable-skills-management-courses](http://chembiol.uni.kn/training/transferable-skills-management-courses/)



Strategic Application for Jobs outside Academia

04 – 05 April 2017, 9:00 – 17:00 h

In this workshop we will define necessary steps to identify personal career goals. You will learn which of your specific technical and personal skills are in demand on the job market. Is it enough to browse through job ads or do I have to use my personal or professional network to find a job? What are the options for unsolicited applications? What can I do to ensure that my application gains attention?

In the first part the participants will learn how to convincingly present their individual highlights in the CV. In the second part, participants get the opportunity to train self-presentation and professional appearance for interviews, phone calls and recruiting events and they will be primed for specific situations when confronted with awkward questions or unexpected challenges.

Lecturer

Barbara Hoffbauer

Course Area

TM

Participants

max. 12

Registration

[– chembiol.uni.kn/training/transferable-skills-management-courses](http://chembiol.uni.kn/training/transferable-skills-management-courses)



Data Visualisation

06 – 07 April 2017, 9:00 – 17:00 h

This two-day workshop enables life scientists to effectively create figures based on quantitative data that add impact to their publications. The workshop is divided into two one-day modules: “Principles” and “Applications”.

On the first day, the “Principles” module focuses on understanding the purpose of a figure, choosing the most appropriate plot type, and the science of perception. This part is primarily concerned with the art of visual communication and integrates participants’ own examples into the teaching process.

On the second day, the “Applications” module focuses on the practical implementation of the data visualisation principles discussed. This is done using the R statistical programming environment with the participants’ own data.

Lecturer

Rick Scavetta

Course Area

TM

Participants

max. 12

Registration

[– chembiol.uni.kn/training/transferable-skills-management-courses](http://chembiol.uni.kn/training/transferable-skills-management-courses)

Data Science for Life Science

12 –14 July 2017, 9:00 –17:00 h

This hands-on course will introduce classic and modern techniques for the analysis of various types of data: molecular databases, images, sequences, and mass spectrometry data. Analysis techniques range from standard logistic regression and random forests to deep neural networks. Participants will learn how to process and integrate their data using the open source platform KNIME and gain experience with extensions such as RDKit (chem informatics), SeqAn (NGS), FIJI (images), and OpenMS (mass spec).

Greg Landum, the main author of RDKit, will cover the cheminformatics and machine learning part of the course. Further teachers are members of the SeqAn, FIJI, and OpenMS group.

Lecturers

Michael Berthold, Alexander Fillbrunn, Martin Horn, Gregory Landrum, Patrick Winter

Course Area

SC

Participants

max. 12

Registration

– chembiol.uni.kn/training/scientific-courses

In cooperation with



Bioimaging

19 – 21 July 2017, 9:00 –17:00 h

This three-day course will cover the following themes by lectures, demonstrations, and hands-on:

- Wild-field fluorescence Imaging
- Laser Scan Confocal Microscopy (Point Scanning and Spinning Disk)
- Total-Internal-Reflection (TIRF) Microscopy
- Image Analysis

A basic knowledge of microscopy techniques is of advantage but not a prerequisite.

Lecturers

Elisa May, Daniela Rothöhler

Course Area

SC

Participants

max. 9

Registration

– chembiol.uni.kn/training/scientific-courses

In cooperation with



Information Literacy

31 July – 01 August 2017, 9:00 – 12:00 h

How to perform research in literature databases? What to consider when formulating the query? How to improve literature research and what options are offered by the library of the University of Konstanz?

This course will teach the fundamental concepts and skills. It is addressed to doctoral students who want to improve their document searching strategies in literature databases.

Lecturer

Monika May

Course Area

SC

Participants

max. 12

Registration

– chembiol.uni.kn/training/scientific-courses



Scientific Presenting

03 – 04 August 2017, 9:00 – 17:00 h

Do you want to have more confidence and impact in your presentations? Do you want to relax and enjoy presenting your research in your team, in meetings and at conferences? This workshop uses a mix of practical exercises, discussion and video feedback to help you get your message across with confidence and clarity. The workshop is highly appreciated by doctoral students in the first phase of their studies.

- Assess your own presentation strengths and weaknesses
- Develop a critical awareness of effective presentation style to give and receive constructive feedback
- Build on and practice the English language of presentation
- Learn strategies for dealing with unexpected or difficult situations
- Design and use PowerPoint slides more effectively
- Develop confidence and enjoyment in public speaking

Lecturer

Millie Baker

Course Area

TM

Participants

max. 10

Registration

– chembiol.uni.kn/training/transferable-skills-management-courses



Patents in Real Life

12 – 13 September 2017, 9:00 – 17:00 h

This course points out the strategic impact of patents in academia and industry. The participants will learn to identify chances and risks of patents and achieve competence in raising the really relevant questions in the field of patents. Basic knowledge and fundamentals of patent law are covered as far as required. Objectives:

- Refreshing knowledge on patents (basic principles, patentability, filing process, and related issues)
- What's the purpose of a patent? (a question anything else than trivial!)
- And how this purpose can get achieved?
- Patent strategies
- Why? – Why? – Why? – Oh, now I understand! – The tremendous role of the self-confident and competent “patent amateur”
- Good claims – bad claims: Common faults and how to avoid them
- Non-disclosure agreements and know-how protection
- Patents as a valuable source of information
- Exciting and promising career opportunities with relation to patents

Lecturer

Gerhard Auer

Participants

max. 15

Course Area

TM

Registration

– chembiol.uni.kn/training/transfereable-skills-management-courses

Proteomics

18 – 20 September 2017, 9:00 – 17:00 h

This three-day course comprises morning lectures and hands-on experiences in the afternoon, hereby treating the following topics:

- General intro (proteomics workflow, mass spectrometers, ESI-/MALDI-ionisation, mass analyzers)
- ESI-MS and MALDI-MS practice
- Sample preparation – theory and practice
- LC-MS and fragmentation techniques – theory and practice
- Special applications (SILAC, ICAT, protein quantification)

This course is addressed to doctoral students who want to learn basics and applications of mass spectrometry of proteins and protein mixtures.

Lecturer

Andreas Marquardt

Course Area

SC

Participants

max. 10

Registration

– chembiol.uni.kn/training/scientific-courses

Autumn School Chemical Biology

25 – 29 September 2017, 9:00 – 17:00 h

Part I: Courses, 25 – 26 September

- Bioconjugation Chemistry
Lecturers: Andreas Marx, Thomas Böttcher
- Combinatorial and High Throughput Technologies
Lecturers: Thomas Mayer, Andreas Marx
- Computational Life Science
Lecturers: Michael Berthold, Kay Diederichs
- Optical Spectroscopy in Life Science
Lecturers: Karin Hauser, Andreas Zumbusch

Part II: International Symposium on Bioorganic Chemistry (ISBOC-11), 27 – 29 September

Keynote Speakers:

- Aaron Ciechanover, Technion, Haifa
- Thomas Steitz, Yale University, Connecticut

Speakers:

- Jürgen Bajorath, Universität Bonn
- Matthew Bogyo, Stanford University
- Xing Chen, Peking University
- Arthur Christopoulos, Monash University, Victoria
- Raymond Deshaies, Caltech, Pasadena
- Ulrike Eggert, King's College, London
- Michael Famulok, Universität Bonn
- Dorothea Fiedler, Leibniz-Institut für Molekulare Pharmakologie, Berlin
- Philipp Holliger, Medical Research Council, Cambridge

- Claudia Höbartner, Georg-August-Universität Göttingen
- Linda Hsieh-Wilson, Caltech, Pasadena
- Yamuna Krishnan, University of Chicago
- Govindasamy Mugesh, Indian Institute of Science, Bangalore
- Richard Payne, The University of Sidney
- Floyd E. Romesberg, The Scripps Research Institute, San Diego
- Joan-Emma Shea, University of California, Santa Barbara
- Hiroaki Suga, University of Tokyo
- Helma Wennemers, ETH Zürich
- Pernilla Wittung-Stafshede, Chalmers University of Technology, Göteborg
- Wei Yang, Intramural Research Program, Bethesda

[– uni.kn/isboc-11/about-isboc-11](http://uni.kn/isboc-11/about-isboc-11)

Protein Folding

04 – 06 October 2017, 9:00 – 17:00 h

This two-day course provides theoretical and practical insights into protein folding. The sessions will cover the following topics:

- Protein folding problem
- Energy landscape theory
- Unfolding/refolding of proteins
- Chevron plot analysis
- Monitoring protein folding of a model protein directly in the lab
- Fluorescence stopped-flow spectroscopy
- Kinetic vs. equilibrium studies

The course is recommended to students with a dissertation project either in structural biology or biophysics, or an interest or cooperation intent in biophysical and/or kinetical research questions.

Lecturer

Michael Kovermann

Course Area

SC

Participants

max. 12

Registration

– chembiol.uni.kn/training/scientific-courses/questions

Determination of Macromolecular Structures

09 – 12 October 2017, 9:00 – 17:00 h

This four-day course will provide theoretical and practical information on structure determination of biomacromolecules by X-ray crystallography and NMR spectroscopy.

The sessions will cover the following topics:

- Diffraction theory
- Structure solution methods
- How to judge structural information
- Practical X-ray structure solution and model building
- NMR building blocks for data acquisition
- Structure calculation using NMR restraints

The course is recommended to doctoral students with a dissertation project either in structural biology or with an interest or cooperation intent in structural-biological research questions.

Lecturers

Kay Diederichs, Michael Kovermann

Course Area

SC

Participants

max. 15

Registration

– chembiol.uni.kn/training/scientific-courses

Frontiers in Bioimaging – Super Resolution and Light Sheet Microscopy

October t.b.d., 9:00–17:00 h

This course will cover the principles of super resolution microscopy (structured illumination & localization microscopy) and light sheet microscopy. The application of these techniques in research, their strengths and prerequisites will be introduced. Introductory lectures for the different topics are followed by demonstration and hands-on sessions at the instruments. Also sample preparation is demonstrated. Hereby, students are welcome to bring along their own samples. For course participation, basic knowledge of the principles of fluorescence microscopy (e.g. participation in one of the Bioimaging courses) is expected.

Lecturer

Elisa May, Martin Stöckl, Carolin Bottling

Course Area

SC

Participants

max.6

Registration

– chembiol.uni.kn/training/scientific-courses

MATLAB

Online

MATLAB is a high-level language and interactive environment for numerical computation, visualisation, and programming. Using MATLAB, you can analyse data, develop algorithms, and create models and applications. The “self-paced” online courses cover the topics to the same extent than an on-site training. Since there will be no course confirmation, the online courses cannot be considered as equal to the graduate school’s training programme.

3 (self-paced) courses are available:

- Basics
- Programming
- Data Processing and Visualisation

Dates

Anytime

Registration

via e-mail to chembiol@uni-konstanz.de

Good Scientific Practice

Online

How should research results be documented? What is the right way to cite? How to handle with image sources? This online course has been designed to give an introduction on questions of good scientific practice including how to wisely plan and organise the research project and which legal aspects, such as in labour law or copyright law, are relevant for doctoral students.

Five modules are available, containing comprehensive information, tests to check the knowledge gained as well as supplementary information material. The final module provides a certificate.

Dates

Anytime

Registration

via E-Mail to chembiol@uni-konstanz.de
(to obtain your licence key)

Please note: This course is obligatory for every KoRS-CB fellow within the first six months of the thesis. You will receive your licence key unasked.

Further Workshops and Training Offers

Academic Staff Development

– uni.kn/asd

- Terms & Conditions: The graduate schools (GBS, GCh, KoRS-CB) reimburse the fee for its doctoral students. Please communicate during the registration which graduate school you belong to.

Career Service

– uni.kn/studieren/beratung-und-service/career-service

- Terms & Conditions: The graduate schools will reimburse fees on individual request.

Research Support Office

– uni.kn/forschungssupport

Hochschul Didaktik Zentrum Universitäten Baden-Württemberg

– uni.kn/asd/angebote/hochschuldidaktik

MuT – Mentoring und Training

– chembiol.uni.kn/training/mentoring-training



Contact

Konstanz Research School Chemical Biology
(KoRS-CB)

Dr. Heike Brandstädter

Room L 902

+49 7531 88-2237

heike.brandstaedter@uni-konstanz.de

Isabelle Wolf

Project Assistant

Room L 901

+49 7531 88-2142

chembiol@uni-konstanz.de

– chembiol.uni-konstanz.de

