

# Vorlesungsverzeichnis

Master of Science - Biochemistry and Molecular  
Biology

Prüfungsversion Wintersemester 2016/17

Wintersemester 2024/25

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# Abkürzungsverzeichnis

## Veranstaltungsarten






AG	Arbeitsgruppe
B	Blockveranstaltung
BL	Blockseminar
DF	diverse Formen
EX	Exkursion
FP	Forschungspraktikum
FS	Forschungsseminar
FU	Fortgeschrittenenübung
GK	Grundkurs
HS	Hauptseminar
KL	Kolloquium
KU	Kurs
LK	Lektürekurs
LP	Lehrforschungsprojekt
OS	Oberseminar
P	Projektseminar
PJ	Projekt
PR	Praktikum
PS	Proseminar
PU	Praktische Übung
RE	Repetitorium
RV	Ringvorlesung
S	Seminar
S1	Seminar/Praktikum
S2	Seminar/Projekt
S3	Schulpraktische Studien
S4	Schulpraktische Übungen
SK	Seminar/Kolloquium
SU	Seminar/Übung
TU	Tutorium
U	Übung
UN	Unterricht
UP	Praktikum/Übung
UT	Übung / Tutorium
V	Vorlesung
V5	Vorlesung/Projekt
VE	Vorlesung/Exkursion
VK	Vorlesung/Kolloquium
VP	Vorlesung/Praktikum
VS	Vorlesung/Seminar
VU	Vorlesung/Übung
W	Werkstatt
WS	Workshop

## Veranstaltungsrhythmen

wöch.	wöchentlich
14t.	14-täglich
Einzel	Einzeltermin

Block	Block
BlockSa	Block (inkl. Sa)
BlockSaSo	Block (inkl. Sa,So)

## Andere

N.N.	Noch keine Angaben
n.V.	Nach Vereinbarung
LP	Leistungspunkte
SWS	Semesterwochenstunden
	Belegung über PULS
	Prüfungsleistung
	Prüfungsnebenleistung
	Studienleistung
	sonstige Leistungserfassung



# Vorlesungsverzeichnis

## Pflichtmodule

### BIO-B-KM1 - State of the Art in Biochemistry and Molecular Biology

#### 110379 RV - Ringvorlesungen - Kernmodul - State Of The Art

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	RV	Mi	16:15 - 17:45	wöch.	2.27.0.01	16.10.2024	Prof. Dr. Silke Leimkühler, Prof. Dr. Katja Arndt, Prof. Dr. Katja Hanack, Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Petra Wendler, Prof. Dr. Frank Bier, Prof. Dr. Salvatore Chiantia

Biochemistry

1	RV	Do	14:15 - 15:45	wöch.	2.25.F0.01	17.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. George Soultoukis
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Molecular Biology and Genetics

1	RV	Fr	14:15 - 15:45	wöch.	2.27.0.01	18.10.2024	Dr. Michael Sauer, Prof. Dr. Markus Grebe, Prof. Dr. Salim Seyfried, apl. Prof. Dr. Otto Baumann, apl. Prof. Dr. Jörg Fettke, Prof. Dr. Ralph Gräf
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Physiology and Cell Biology

#### Leistungen in Bezug auf das Modul

SL 543311 - Ringvorlesungen zu Molecular life sciences (unbenotet)

### BIO-B-KM2 - Practical Bioinformatics

Für dieses Modul werden aktuell keine Lehrveranstaltungen angeboten

## Vertiefungsmodul

### BIO-B-VM - Advanced Research Practical

#### 108864 PR - Advanced Research Practical Cell Biology

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Dr. Irene Meyer
Raum und Zeit nach Absprache							
2	PR	N.N.	N.N.	Block	N.N.	N.N.	Dr. Marianne Grafe
Raum und Zeit nach Absprache							

#### Leistungen in Bezug auf das Modul

SL 543511 - Praktikum (4 Wochen) (unbenotet)

#### 109851 B - Advanced Research Practical - Evolutionary Biology

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Ralph Tiedemann, N.N.,



110459 PR - Advanced Research Practical Evolutionäre Genomik							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Michael Hofreiter, Dr. Stefanie Hartmann, Dr. rer. nat. Patrick Arnold

**Leistungen in Bezug auf das Modul**

SL 543511 - Praktikum (4 Wochen) (unbenotet)

110551 PR - Advanced Research Practical Physical Biochemistry							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, Dr. rer. nat. Anja Thalhammer

**Leistungen in Bezug auf das Modul**

SL 543511 - Praktikum (4 Wochen) (unbenotet)

110562 PR - Advanced Research Practical Plant Cell Biology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Markus Grebe, Dr. Michael Sauer, Dr. rer. nat. René Schneider, Matija Stanic

Raum und Zeit nach Absprache

**Leistungen in Bezug auf das Modul**

SL 543511 - Praktikum (4 Wochen) (unbenotet)

110607 PR - Advanced Research Practical Plant Molecular Biology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	N.N.

**Leistungen in Bezug auf das Modul**

SL 543511 - Praktikum (4 Wochen) (unbenotet)

110608 PR - Advanced Research Practical Synthetic Biology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Dr. rer. nat. Lena Hochrein

**Leistungen in Bezug auf das Modul**

SL 543511 - Praktikum (4 Wochen) (unbenotet)

110611 PR - Advanced Research Practical Microbiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Elke Dittmann-Thünemann

**Leistungen in Bezug auf das Modul**

SL 543511 - Praktikum (4 Wochen) (unbenotet)

110657 PR - Advanced Research Practical Molecular Biotechnology / Immunology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Katja Arndt

**Leistungen in Bezug auf das Modul**

SL 543511 - Praktikum (4 Wochen) (unbenotet)

110666 PR - Advanced Research Practical Molecular Bioanalysis							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Frank Bier
<b>Leistungen in Bezug auf das Modul</b>							
SL	543511 - Praktikum (4 Wochen) (unbenotet)						

110668 PR - Advanced Research Practical Immunotechnology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Katja Hanack
<b>Leistungen in Bezug auf das Modul</b>							
SL	543511 - Praktikum (4 Wochen) (unbenotet)						

## Richtungsmodule

BIO-B-RM1 - Nanobiotechnology							
110663 PR - Bioelectronics, Nanobiotechnology, Bioanalysis - 6 week practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Frank Bier
<b>Leistungen in Bezug auf das Modul</b>							
SL	543612 - Praktikum (6 Wochen) (unbenotet)						

110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier

### Kommentar

For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.

### Leistungsnachweis

Active participation in lecture and seminar  
Oral examination

### Bemerkung

- The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.
- We will change between on-line lectures and contributions given by student participants.
- The seminar will be organised as block seminar. Information about the dates will be announced.
- Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations
- The course will be given only in winter semester

### Leistungen in Bezug auf das Modul

SL 543611 - Forschungsthemen der Nanobiotechnologie/Biosensorik/Bioanalytik (unbenotet)

### BIO-B-RM2 - Cellular Signal Transduction

110226 V - Cellular Signal Transduction							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	16:15 - 17:45	wöch.	2.25.B0.01	17.10.2024	apl. Prof. Dr. Gaby-Fleur Böhl, Prof. Dr. Tim Schulz

**Kommentar**

The **corresponding seminar** takes place during summer term.  
 For the Richtungsmodul BIO-B-RM2 a 6-week practical is offered as a separate course.  
 For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 543711 - Vorlesung und Seminar (unbenotet)

110227 PR - Cellular Signal Transduction 6-week practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Gaby-Fleur Böhl, Prof. Dr. Tim Schulz

**Leistungen in Bezug auf das Modul**

SL 543712 - Praktikum (6 Wochen) (unbenotet)

**BIO-B-RM3 - Evolutionary Genomics (Evolution across Scales module D)**

110131 VU - Bioinformatik biologischer Sequenzen / Evolutionary Genomics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.70.0.11	15.10.2024	Dr. Stefanie Hartmann
1	U	Di	10:15 - 11:45	wöch.	2.70.0.01	15.10.2024	Dr. Stefanie Hartmann

**Kommentar**

This course does not have an online option, you will need to be present for the lectures and computer labs.  
For the computer labs of this course, you will need an account on the university's HPC cluster. This account is tied to your university account, so you can only apply for the cluster account once you are enrolled and have your university ID. Please generate and activate your ssh key-pair as described here: [https://docs.hpc.uni-potsdam.de/overview/getting\\_access.html](https://docs.hpc.uni-potsdam.de/overview/getting_access.html) (Note: this site is only available from within the university's network. From anywhere and to get started, see <https://www.uni-potsdam.de/de/zim/angebote-loesungen/hpc> )  
Copy the key-pair to a USB flash drive and bring it to the first computer lab. Note: the USB drive with your ssh keys, the folder(s) in which you're storing them, and the files of the keys should not have spaces in them. Special symbols and umlauts are a bad idea as well. Please rename files and folders accordingly.

**Leistungen in Bezug auf das Modul**

SL 543811 - Bioinformatik biologischer Sequenzen/Evolutionäre Genomik (unbenotet)

110404 B - Analysis of high-throughput sequencing data							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

## Bemerkung

This is a block course mixing lectures and hands-on work (exercises). It will most likely take place from **26 February to 8 March 2024**, 9 am to 5 pm. It will be in hybrid form, in the computer pools D2.01 und D2.02 in house 25 (Potsdam Golm) and Online via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769).

There will be three information/discussion meetings via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769), feel free to join them.

- 4 October 2023, 12 to 1 pm
- 16 October 2023, 12 to 1 pm
- 6 November 2023, 12 to 1 pm

Those meetings are not mandatory, you may join any time. If you cannot make it and would like to have another one, please contact the lecturer (see below).

[2023-11-06] If you are interested in attending an additional meeting before the enrollment period closes this week, please indicate your availability by filling out the poll at the following link: <https://doodle.com/meeting/participate/id/aznNBAYa>

**[2023-11-07] There will be two other Zoom meetings: the first one is today, November 7, at 8:15 pm. The second one is on Friday, November 10, at 1 pm. Meeting ID: 686 6154 6081, Passcode: 06444769**

If you choose to participate Online, you will just need to have access to a simple PC for the time of the course. The only thing you need is a Web Browser and a Linux Terminal. In Windows you may use tools like Putty (<https://www.putty.org/>) or MobaXTerm (<https://mobaxterm.mobatek.net/download.html>, Home Edition). Some prior knowledge about the Linux Terminal may be helpful also, you can find a good starter here: <http://swcarpentry.github.io/shell-novice/>.

You should have some knowledge about biology to get most out of this course. Also attending the [Evolutionary Genomics](#) course taught by Stefanie Hartmann may be a very good option in every case.

You may find a rough description of the course in the Bioinformatics module guide, BIO-MBIW08 ([https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente\\_und\\_%C3%9Cbersichten/Studium\\_und\\_Lehre/Module\\_Guide\\_Bioinformatics\\_EN.pdf](https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente_und_%C3%9Cbersichten/Studium_und_Lehre/Module_Guide_Bioinformatics_EN.pdf)).

There is a Moodle page for this course: HTS2024, <https://moodle2.uni-potsdam.de/course/view.php?id=38040>.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question or if you need some special arrangements.

## Leistungen in Bezug auf das Modul

PNL 543812 - Computerlabor Bioinformatik biologischer Sequenzen / Evolutionäre Genomik (2 Wochen) (unbenotet)

### BIO-B-RM4 - Antibody-Technologies

Für dieses Modul werden aktuell keine Lehrveranstaltungen angeboten

### BIO-B-RM5 - Novel Cloning Technologies for Future Biotechnology

Für dieses Modul werden aktuell keine Lehrveranstaltungen angeboten

### BIO-B-RM6 - Animal Models in Developmental Biology and Cell Physiology

110642 VS - Animal Models in Developmental Biology and Cell Physiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	10:30 - 12:00	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
1	S	Do	12:15 - 13:45	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
<b>Leistungen in Bezug auf das Modul</b>							
PNL 544111 - Animal Models in Developmental Biology and Physiology (unbenotet)							

110643 PR - Animal Models in Developmental Biology and Cell Physiology - P							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	FP	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
<b>Leistungen in Bezug auf das Modul</b>							
SL 544112 - Forschungspraktikum (6 Wochen) (unbenotet)							

### BIO-B-RM7 - Bioelectronics

110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier
<b>Kommentar</b>							
For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.							
<b>Leistungsnachweis</b>							
Active participation in lecture and seminar Oral examination							
<b>Bemerkung</b>							
<ul style="list-style-type: none"> <li>The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.</li> <li>We will change between on-line lectures and contributions given by student participants.</li> <li>The seminar will be organised as block seminar. Information about the dates will be announced.</li> <li>Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations</li> <li>The course will be given only in winter semester</li> </ul>							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 544211 - Forschungsthemen der Biosensorik (unbenotet)							

### BIO-B-RM8 - Immunotechnology

110603 S - Immuntechnologie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behrsing
Unterrichtsprache Englisch							

**Leistungen in Bezug auf das Modul**

PNL 544311 - Immuntechnologie (unbenotet)

**110604 V - Spezielle Immunologie**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behrsing

Unterrichtssprache Englisch

**Leistungen in Bezug auf das Modul**

SL 544314 - Spezielle Immunologie (unbenotet)

**110653 PR - Praktikum im Bereich Immunologie oder Biotechnologie**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Katja Arndt

**Leistungen in Bezug auf das Modul**

SL 544312 - Praktikum im Bereich Immunologie oder Biotechnologie (6 Wochen) (unbenotet)

**110655 V - Molecular Biotechnology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt

**Leistungen in Bezug auf das Modul**

SL 544313 - Molekulare Biotechnologie (unbenotet)

**BIO-B-RM9 - Synthetic Biology**

**110163 B - 6-Wochen Blockpraktikum am Fraunhofer IZI-BB**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Harald Seitz

**Kommentar**

Ansprechpartner:  
 PD Dr. Harald Seitz  
 Fraunhofer Institute for Cell Therapy and Immunology Branch Bioanalytics and Bioprocesses (IZI-BB) Biomarker Validation and Assay Development  
 Am Mühlenberg 13 14476 Potsdam-Golm  
 Tel.: 0331 58187-208; [harald.seitz@izi-bb.fraunhofer.de](mailto:harald.seitz@izi-bb.fraunhofer.de)

**Leistungen in Bezug auf das Modul**

SL 544412 - Praktikum (6 Wochen) (unbenotet)

**110659 PR - Synthetic Biology (Practical)**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Katja Arndt

**Kommentar**

- internal or external practical, can be done any time
- practical should focus on topics/techniques in synthetic biology, molecular biology, biotechnology, biochemistry or related disciplines
- practical without labwork (e.g. in bioinformatics) is also possible
- further information can be found in the moodle course "Synthetic Biology"

**Leistungen in Bezug auf das Modul**

SL 544412 - Praktikum (6 Wochen) (unbenotet)



### BIO-B-RM10 - Modern Methods in Light Microscopy

Für dieses Modul werden aktuell keine Lehrveranstaltungen angeboten

### BIO-B-RM11 - Physiology of Microorganisms

#### 110614 VS - Physiology of Microorganisms

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	08:15 - 09:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner
1	S	Do	10:15 - 11:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann

#### Leistungen in Bezug auf das Modul

PNL 544611 - Physiologie der Mikroorganismen (unbenotet)

#### 110615 PR - Physiology of Microorganisms - practical

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner

#### Leistungen in Bezug auf das Modul

SL 544612 - Physiologie phototropher Mikroorganismen/Physiologie extremophiler Mikroorganismen (6 Wochen) (unbenotet)

### BIO-B-RM12 - Current Aspects and Methods of Plant Cell Biology

#### 110565 VS - Current Aspects and Methods of Plant Cell Biology RM

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
1	S	Mo	14:00 - 15:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe

#### Kommentar

Lecture and Seminar take place in house 20, room 2.20.001.

This winter term there will likely be no (or maximum 1-2) spaces for 6-week practicals due to the larger number of students who took the course as an 11 CP course in the summer. Certainly, the course can be offered as a 6CP elective B-module with lecture and seminar, only. Please, contact Prof. Grebe under markus.grebe@uni-potsdam.de in case of further queries.

#### Leistungen in Bezug auf das Modul

PNL 544711 - Current aspects and methods of plant cell biology (unbenotet)

#### 110569 B - Current Aspects and Methods of Plant Cell Biology RM - practical

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Dr. rer. nat. René Schneider, Prof. Dr. Markus Grebe, Dr. Michael Sauer, Dr. rer. nat. Andres Eduardo Rodriguez Cubillos

Raum und Zeit nach Absprache

**Kommentar**

Termine nach Vereinbarung (mgrebe@uni-potsdam.de)

Note, depending on the development of the COVID19 pandemic it may (or may not) be possible to offer a very limited number of 6-week practical places in connection to lecture and seminar. These can anyway be chosen as an on-line elective 6 LP module. Please, enquire at the first lecture date in the beginning of November 2020 with the lecturer Prof. Dr. Markus Grebe. mgrebe@uni-potsdam.de

**Leistungen in Bezug auf das Modul**

SL 544712 - Current aspects and methods of plant cell biology (6 Wochen) (unbenotet)

**BIO-B-RM13 - Evolutionary and Population Genetics**

Für dieses Modul werden aktuell keine Lehrveranstaltungen angeboten

**BIO-B-RM14 - Physical Methods in Live Cell Imaging (auslaufend)**

Dieses Modul gilt, aufgrund einer Änderungssatzung, nur noch für Studierende, die das Modul vor dem 01.10.2023 begonnen haben. Das Modul läuft spätestens am 30.09.2025 aus.

Für dieses Modul werden aktuell keine Lehrveranstaltungen angeboten

**BIO-B-RM15 - Metalloproteins**

**110175 PR - Metalloproteins - 6-week research project**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Silke Leimkühler

**Leistungen in Bezug auf das Modul**

SL 545012 - Proteinanalytik (6 Wochen) (unbenotet)

**BIO-B-RM16 - Current Aspects of Plant Physiology**

**110394 PR - Current Aspects of Plant Physiology - 6-week Practical**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke

**Kommentar**

6-week research project as part of the Richtungsmodul; date to be agreed on with lecturer

**Leistungen in Bezug auf das Modul**

SL 545112 - Practical Course Current Aspects of Plant Physiology and Plant Cell Biology (6 Wochen) (unbenotet)

110395 VS - Current Aspects of Plant Physiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	09:15 - 10:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
1	S	Do	11:00 - 11:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
<b>Kommentar</b>							
For the 8LP Modules (WM4,5,6) 2-week practicals are offered.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 545111 - Current Aspects of Plant Physiology and Plant Cell Biology (unbenotet)							

BIO-B-RM17 - Epigenetics and Epigenomics in Plants, Animals and Fungi							
110397 PR - Current Problems and Modern Methods in Plant Genetics and Epigenetics - 6-week practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo
6-week research practical as part of the Richtungsmodul; date to be agreed on							
<b>Leistungen in Bezug auf das Modul</b>							
SL 545221 - Epigenetics and Epigenomics in Plants, Animals and Fungi (6 Wochen) (unbenotet)							

110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Lecture as part of the Richtungsmodul and the Wahlpflichtmodul							

1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
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Seminar as part of the Richtungsmodul and the Wahlpflichtmodul

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 545222 - Epigenetics and Epigenomics in Plants, Animals and Fungi (unbenotet)

**BIO-B-RM18 - Microevolution/Conserving the Evolutionary process - (Evolution across Scales module C)**

**109842 S - How much conservation is needed in evolution?**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Di	14:00 - 14:45	wöch.	2.25.B2.01	15.10.2024	N.N.

**Leistungen in Bezug auf das Modul**

PNL 545312 - How much conservation is needed in Evolution? (unbenotet)

**109843 V - Molecular Population Genetics**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	15:00 - 15:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Ralph Tiedemann

**Leistungen in Bezug auf das Modul**

SL 545314 - Molecular Population Genetics (unbenotet)

**109844 U - Molecular Population Genetics**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	U	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Ralph Tiedemann, N.N., Feng Cheng

Blockveranstaltung vom 10.-21. Februar 2025, ganztägig

**Leistungen in Bezug auf das Modul**

PNL 545313 - Molecular population genetics/Conservation genetics (unbenotet)

**BIO-B-RM19 - The Central Role of Evolutionary Biology in Biosciences (Evolution across Scale module A)**

**109845 V - State of the Art Evolutionary Biology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	5.03.1.04	14.10.2024	Prof. Dr. Anja Linstädter, Prof. Dr. Jana Eccard, Prof. Dr. Michael Hofreiter, Prof. Dr. Ralph Tiedemann

**Leistungen in Bezug auf das Modul**

SL 545421 - State-of-the-art Evolutionary Biology (unbenotet)

**109852 KL - Evolutionsbiologisches / Genetisches Kolloquium**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	KL	Mo	16:00 - 17:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Ralph Tiedemann, Prof. Dr. Michael Lenhard, Prof. Dr. Michael Hofreiter

**Leistungen in Bezug auf das Modul**

PNL 545425 - Oberseminar Evolutionsbiologisches/Genetisches Kolloquium (unbenotet)

**BIO-B-RM19 - The Central Role of Evolutionary Biology in Biosciences (Evolution across Scale module A) (auslaufend)**

Dieses Modul gilt, aufgrund einer Änderungssatzung, nur noch für Studierende, die das Modul vor dem 01.10.2023 begonnen haben. Das Modul läuft spätestens am 30.09.2025 aus.

**109845 V - State of the Art Evolutionary Biology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	5.03.1.04	14.10.2024	Prof. Dr. Anja Linstädter, Prof. Dr. Jana Eccard, Prof. Dr. Michael Hofreiter, Prof. Dr. Ralph Tiedemann

**Leistungen in Bezug auf das Modul**

SL 545411 - State-of-the-art Evolutionary Biology (unbenotet)

**109852 KL - Evolutionsbiologisches / Genetisches Kolloquium**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	KL	Mo	16:00 - 17:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Ralph Tiedemann, Prof. Dr. Michael Lenhard, Prof. Dr. Michael Hofreiter

**Leistungen in Bezug auf das Modul**

PNL 545414 - Oberseminar Evolutionsbiologisches/Genetisches Kolloquium I (unbenotet)

**BIO-B-RM21 - Molecular Biology and Genome Research**

**110449 PR - Structural aspects in molecular biology and genome research - 6 week practical**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Petra Wendler

**Leistungen in Bezug auf das Modul**

SL 545612 - Forschungspraktikum (6 Wochen) (unbenotet)

**110537 VS - Molecular Biology and Genome Research**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Mi	12:15 - 13:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Do	08:15 - 09:45	wöch.	2.25.B0.01	17.10.2024	Prof. Dr. Bernd Müller-Röber

**Kommentar**

Introduction with all necessary information to the module structure (lecture, seminar, internships, exams) will be provided during the 1st date of the seminar (18.10.2023 and 19.10.2023) , pdf file of slides also provided in the Moodle course. (Molecular Biology and Genome Research)

**Changed max number for participants per seminar group: 10.**

Assignment to seminar groups can be changed due to student participant number or other necessities.

The **seminar** will discuss review and research papers within the topic frame **Read Genomes, Understand Genomes, Write Genomes, and Manipulate Genomes** .

The seminar is designed as a Scientific Meeting based on active participation of students taking certain roles within different seminars.

Each student has to pick the role of a Speaker on one date and of an Expert Panelist at another date. Please enter your name for a certain role and seminar date in the [table](#) provided in the [link](#) .

**Your role:**

- **Speaker** : The Speaker will present a research paper with emphasis on results, discussion and outlook for this research approach and participate in the panel discussion.
- **Expert Panelist** : There will be an additional panelist, who will discuss questions.

Being Speaker or Expert Panelist:

- you should be able to discuss the contents and to evaluate the quality of the presented paper,
- you should be able to answer the questions given by the lecturer and to raise own questions,
- and participate actively in the discussion.

**Audience** : All other participating students will actively participate in the discussion with questions and remarks on the relevant paper and research topic. At the end of the seminar, the audience will give feedback to the presenter and the expert panelists.

All papers will be available in the Moodle course as pdf.

**Leistungen in Bezug auf das Modul**

PNL 545613 - Literatur-Seminar Plant Genomics and Systems Biology (unbenotet)

110542 PR - Molecular Biology research internship - 6 week practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Dr. rer. nat. Lena Hochrein, Dr. Omid Karami

**Kommentar**

6-week research project as part of the Intensive Module - in the Department of Molecular Biology. Instructions will be provided during the seminar.

**Leistungen in Bezug auf das Modul**

SL 545612 - Forschungspraktikum (6 Wochen) (unbenotet)

110543 PR - Molecular Biology and Genome Research - 6 week practical in research groups							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	FP	N.N.	N.N.	Block	N.N.	N.N.	N.N.

**Kommentar**

6-week research project as part of the Intensive Module Molecular Biology and Genome Research: students search by themselves for possible internship places and working groups. Instructions will be provided during the seminar.

**Leistungen in Bezug auf das Modul**

SL 545612 - Forschungspraktikum (6 Wochen) (unbenotet)

**BIO-B-RM22 - Current Research in Biochemistry and Molecular Biology in Local Research Institutes and Biotechnology Companies**

**108867 VS - Cell Biology for Life Scientists (Lecture plus Seminar)**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	16:15 - 17:45	wöch.	2.26.0.66	14.10.2024	Prof. Dr. Ralph Gräf
1	S	Di	16:00 - 17:30	wöch.	2.26.0.53	15.10.2024	Prof. Dr. Ralph Gräf, Dr. Irene Meyer, Dr. Marianne Grafe

**Kommentar**

The contents of the lecture „Cell Biology for Life Scientists” held in English partially overlaps with Zellbiologie (Tiere) (in German, SoSe). Both lectures can be combined with the seminar within our 6 LP, 8 LP, 11 LP elective modules.

**Bemerkung**

**Please register for the Moodle courses, all information is spread via Moodle!**

Lecture: Gräf,R.: Cell Biology for Life Scientists

Seminar: Gräf,R.: Wahlpflichtmodul - Zelldynamik und Cytoskelett/Cell Biology of Centrosomes and the Nuclear Envelope

**Leistungen in Bezug auf das Modul**

PNL 545711 - Lecture and Seminar (unbenotet)

**108868 FP - 6-week practical: Cell Biology Of Centrosomes And The Nuclear Envelope**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	FP	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Ralph Gräf, Dr. Marianne Grafe, Dr. Irene Meyer

Raum und Zeit nach Absprache

**Leistungen in Bezug auf das Modul**

SL 545712 - Practical course (6 weeks) (unbenotet)

**110095 VS - Modern aspects of biochemistry and analytics of carbohydrates**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	Dr. Stefanie Barbirz, apl. Prof. Dr. Jörg Fettke

Block course planned from 17.02.2025-28.02.2025. Information seminar in October 2024

**Kommentar**

Carbohydrates as part of glycan structures occur in all domains of life. Due to their ubiquitous role in cell-surface based signaling and information exchange a variety of glycan-based research fields has emerged during the last two decades. Especially developments in molecular biology and modern analytical methods have increased our knowledge about the ubiquitous role of carbohydrates in animals, plants, and bacteria.

The course will enable participants to develop an interdisciplinary perspective on the field of glycobiology. For this, in the beginning, a carbohydrate structure-based understanding of glycan biochemistry will be developed. This covers qualitative and quantitative carbohydrate analytics as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins.

Aim of this course is an insight into the interdisciplinary field of glycobiology. It will present an actual survey of the biochemistry of sugar building blocks, oligo- and polysaccharides in pro- and eukaryotic systems. Moreover, qualitative and quantitative carbohydrate analytics will be covered as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins. Subject areas: Fundamentals on glycoconjugates. Structural and functional principles of the glycan conformational space. N- and O-linked glycosylation. Glycan analysis. Lectins and carbohydrate binding modules. Physicochemical principles of protein-carbohydrate interactions. Glycan arrays. Microbial glycobiology and pathogenesis.

**Leistungen in Bezug auf das Modul**

PNL 545711 - Lecture and Seminar (unbenotet)

**110397 PR - Current Problems and Modern Methods in Plant Genetics and Epigenetics - 6-week practical**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo

6-week research practical as part of the Richtungsmodul; date to be agreed on

**Leistungen in Bezug auf das Modul**

SL 545712 - Practical course (6 weeks) (unbenotet)

**110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke

Lecture as part of the Richtungsmodul and the Wahlpflichtmodul

1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
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Seminar as part of the Richtungsmodul and the Wahlpflichtmodul

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 545711 - Lecture and Seminar (unbenotet)

**110442 VS - Cryo Electron Microscopy in Structural Biology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	N.N. (AG)	15.10.2024	Dr. rer. nat. Sasa Petrovic, Prof. Dr. Petra Wendler
1	S	Di	10:15 - 11:45	wöch.	N.N. (AG)	15.10.2024	Prof. Dr. Petra Wendler, Dr. rer. nat. Sasa Petrovic



## Kommentar

Content:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years (<https://www.nature.com/articles/d41586-020-00341-9>)

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

This course can be taken as a 6CP, 8CP or 11CP module:

6CP: Lecture and seminar

8CP: Lecture, seminar and 2 week practical course

11CP: Lecture seminar and 6 week practical course

Moodle Page: <https://moodle2.uni-potsdam.de/course/view.php?id=18544>

## Literatur

The course will go through the online resources on the Caltech webpage:

<http://cryo-em-course.caltech.edu/videos>

interesting review articles:

<https://www.sciencedirect.com/science/article/pii/S0304416517302374>

<https://dasher.wustl.edu/bio5357/readings/molcell-58-677-15.pdf>

interesting short youtube videos:

<https://www.youtube.com/watch?v=BJKkC0W-6Qk>

<https://www.youtube.com/watch?v=026rzTXb1zw&t=16s>

<https://www.youtube.com/watch?v=Qq8DO-4BnIY>

**Leistungen in Bezug auf das Modul**

PNL 545711 - Lecture and Seminar (unbenotet)

110447 PR - Cryo Electron Microscopy in Structural Biology - 6 week practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Petra Wendler, Dr. Jakob Ruickoldt, Thomas Bick, Dr. rer. nat. Sasa Petrovic

**Kommentar**

This course should be combined with the lecture and seminar "Cryo Electron Microscopy in Structural biology" to obtain 11 CP.

Content of lecture and seminar:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years ( <https://www.nature.com/articles/d41586-020-00341-9> )

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

**Leistungen in Bezug auf das Modul**

SL 545712 - Practical course (6 weeks) (unbenotet)



**110552 PR - Current Research in Biochemistry and Molecular Biology in Local Research Institutes and Biotechnology Companies Practical**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	FP	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.

**Leistungen in Bezug auf das Modul**

SL 545712 - Practical course (6 weeks) (unbenotet)

110553 VS - Current Research in Biochemistry and Molecular Biology in Local Research Institutes and Biotechnology Companies							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.
<b>Leistungen in Bezug auf das Modul</b>							
PNL 545711 - Lecture and Seminar (unbenotet)							

## Wahlpflichtmodule

BIO-B-WM1 - Biochemistry A							
110095 VS - Modern aspects of biochemistry and analytics of carbohydrates							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	Dr. Stefanie Barbirz, apl. Prof. Dr. Jörg Fettke
Block course planned from 17.02.2025-28.02.2025. Information seminar in October 2024							
<b>Kommentar</b>							
<p>Carbohydrates as part of glycan structures occur in all domains of life. Due to their ubiquitous role in cell-surface based signaling and information exchange a variety of glycan-based research fields has emerged during the last two decades. Especially developments in molecular biology and modern analytical methods have increased our knowledge about the ubiquitous role of carbohydrates in animals, plants, and bacteria.</p> <p>The course will enable participants to develop an interdisciplinary perspective on the field of glycobiology. For this, in the beginning, a carbohydrate structure-based understanding of glycan biochemistry will be developed. This covers qualitative and quantitative carbohydrate analytics as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins.</p> <p>Aim of this course is an insight into the interdisciplinary field of glycobiology. It will present an actual survey of the biochemistry of sugar building blocks, oligo- and polysaccharides in pro- and eukaryotic systems. Moreover, qualitative and quantitative carbohydrate analytics will be covered as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins. Subject areas: Fundamentals on glycoconjugates. Structural and functional principles of the glycan conformational space. N- and O-linked glycosylation. Glycan analysis. Lectins and carbohydrate binding modules. Physicochemical principles of protein-carbohydrate interactions. Glycan arrays. Microbial glycobiology and pathogenesis.</p>							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 545911 - Vorlesung und Seminar (unbenotet)							

110442 VS - Cryo Electron Microscopy in Structural Biology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	N.N. (AG)	15.10.2024	Dr. rer. nat. Sasa Petrovic, Prof. Dr. Petra Wendler
1	S	Di	10:15 - 11:45	wöch.	N.N. (AG)	15.10.2024	Prof. Dr. Petra Wendler, Dr. rer. nat. Sasa Petrovic

## Kommentar

Content:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years ( <https://www.nature.com/articles/d41586-020-00341-9> )

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

This course can be taken as a 6CP, 8CP or 11CP module:

6CP: Lecture and seminar

8CP: Lecture, seminar and 2 week practical course

11CP: Lecture seminar and 6 week practical course

Moodle Page: <https://moodle2.uni-potsdam.de/course/view.php?id=18544>

## Literatur

The course will go through the online resources on the Caltech webpage:

<http://cryo-em-course.caltech.edu/videos>

interesting review articles:

<https://www.sciencedirect.com/science/article/pii/S0304416517302374>

<https://dasher.wustl.edu/bio5357/readings/molcell-58-677-15.pdf>

interesting short youtube videos:

<https://www.youtube.com/watch?v=BJKkC0W-6Qk>

<https://www.youtube.com/watch?v=026zTXb1zw&t=16s>

<https://www.youtube.com/watch?v=Qq8DO-4BnIY>

**Leistungen in Bezug auf das Modul**

PNL 545911 - Vorlesung und Seminar (unbenotet)

110443 PR - Cryo Electron Microscopy in Structural Biology - practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	Di	12:30 - 17:30	wöch.	2.25.D0.02	15.10.2024	Prof. Dr. Petra Wendler, Dr. Jakob Ruickoldt, Thomas Bick, Dr. rer. nat. Sasa Petrovic

**Kommentar**

This course should be combined with the lecture and seminar "Cryo Electron Microscopy in Structural biology" to obtain 8 CP.

Content of lecture and seminar:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years (<https://www.nature.com/articles/d41586-020-00341-9>)

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

110603 S - Immunotechnologie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behring
Unterrichtssprache Englisch							

**Leistungen in Bezug auf das Modul**

PNL 545911 - Vorlesung und Seminar (unbenotet)

110605 V - Molecular Biotechnology and Advanced Immunology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behring
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 545911 - Vorlesung und Seminar (unbenotet)

**110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier

**Kommentar**

For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.

**Leistungsnachweis**

Active participation in lecture and seminar  
Oral examination

**Bemerkung**

- The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.
- We will change between on-line lectures and contributions given by student participants.
- The seminar will be organised as block seminar. Information about the dates will be announced.
- Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations
- The course will be given only in winter semester

**Leistungen in Bezug auf das Modul**

PNL 545911 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM2 - Biotechnology A**

**110095 VS - Modern aspects of biochemistry and analytics of carbohydrates**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	Dr. Stefanie Barbirz, apl. Prof. Dr. Jörg Fettke

Block course planned from 17.02.2025-28.02.2025. Information seminar in October 2024

**Kommentar**

Carbohydrates as part of glycan structures occur in all domains of life. Due to their ubiquitous role in cell-surface based signaling and information exchange a variety of glycan-based research fields has emerged during the last two decades. Especially developments in molecular biology and modern analytical methods have increased our knowledge about the ubiquitous role of carbohydrates in animals, plants, and bacteria.

The course will enable participants to develop an interdisciplinary perspective on the field of glycobiology. For this, in the beginning, a carbohydrate structure-based understanding of glycan biochemistry will be developed. This covers qualitative and quantitative carbohydrate analytics as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins.

Aim of this course is an insight into the interdisciplinary field of glycobiology. It will present an actual survey of the biochemistry of sugar building blocks, oligo- and polysaccharides in pro- and eukaryotic systems. Moreover, qualitative and quantitative carbohydrate analytics will be covered as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins. Subject areas: Fundamentals on glycoconjugates. Structural and functional principles of the glycan conformational space. N- and O-linked glycosylation. Glycan analysis. Lectins and carbohydrate binding modules. Physicochemical principles of protein-carbohydrate interactions. Glycan arrays. Microbial glycobiology and pathogenesis.

**Leistungen in Bezug auf das Modul**

PNL 546011 - Vorlesung und Seminar (unbenotet)



110603 S - Immunotechnologie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behrsing
Unterrichtssprache Englisch							

**Leistungen in Bezug auf das Modul**

PNL 546011 - Vorlesung und Seminar (unbenotet)

110605 V - Molecular Biotechnology and Advanced Immunology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behrsing
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 546011 - Vorlesung und Seminar (unbenotet)

110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier

**Kommentar**

For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.

**Leistungsnachweis**

Active participation in lecture and seminar  
Oral examination

**Bemerkung**

- The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.
- We will change between on-line lectures and contributions given by student participants.
- The seminar will be organised as block seminar. Information about the dates will be announced.
- Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations
- The course will be given only in winter semester

**Leistungen in Bezug auf das Modul**

PNL 546011 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM3 - Protein Science A**

110442 VS - Cryo Electron Microscopy in Structural Biology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	N.N. (AG)	15.10.2024	Dr. rer. nat. Sasa Petrovic, Prof. Dr. Petra Wendler
1	S	Di	10:15 - 11:45	wöch.	N.N. (AG)	15.10.2024	Prof. Dr. Petra Wendler, Dr. rer. nat. Sasa Petrovic

## Kommentar

Content:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years (<https://www.nature.com/articles/d41586-020-00341-9>)

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

This course can be taken as a 6CP, 8CP or 11CP module:

6CP: Lecture and seminar

8CP: Lecture, seminar and 2 week practical course

11CP: Lecture seminar and 6 week practical course

Moodle Page: <https://moodle2.uni-potsdam.de/course/view.php?id=18544>

## Literatur

The course will go through the online resources on the Caltech webpage:

<http://cryo-em-course.caltech.edu/videos>

interesting review articles:

<https://www.sciencedirect.com/science/article/pii/S0304416517302374>

<https://dasher.wustl.edu/bio5357/readings/molcell-58-677-15.pdf>

interesting short youtube videos:

<https://www.youtube.com/watch?v=BJKkC0W-6Qk>

<https://www.youtube.com/watch?v=026zTXb1zw&t=16s>

<https://www.youtube.com/watch?v=Qq8DO-4BnIY>

**Leistungen in Bezug auf das Modul**

PNL 546111 - Vorlesung und Seminar (unbenotet)

110443 PR - Cryo Electron Microscopy in Structural Biology - practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	Di	12:30 - 17:30	wöch.	2.25.D0.02	15.10.2024	Prof. Dr. Petra Wendler, Dr. Jakob Ruickoldt, Thomas Bick, Dr. rer. nat. Sasa Petrovic

### Kommentar

This course should be combined with the lecture and seminar "Cryo Electron Microscopy in Structural biology" to obtain 8 CP.

Content of lecture and seminar:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years (<https://www.nature.com/articles/d41586-020-00341-9>)

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

110603 S - Immunotechnologie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behring
Unterrichtssprache Englisch							

### Leistungen in Bezug auf das Modul

PNL 546111 - Vorlesung und Seminar (unbenotet)

110605 V - Molecular Biotechnology and Advanced Immunology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behring
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 546111 - Vorlesung und Seminar (unbenotet)

**110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier

**Kommentar**

For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.

**Leistungsnachweis**

Active participation in lecture and seminar  
Oral examination

**Bemerkung**

- The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.
- We will change between on-line lectures and contributions given by student participants.
- The seminar will be organised as block seminar. Information about the dates will be announced.
- Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations
- The course will be given only in winter semester

**Leistungen in Bezug auf das Modul**

PNL 546111 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM4 - Genome Research and Systems Biology A**

**110091 B - Current Aspects of Plant Metabolism**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke

**Kommentar**

Termin nach Vereinbarung(fettke@uni-potsdam.de)

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

**110226 V - Cellular Signal Transduction**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	16:15 - 17:45	wöch.	2.25.B0.01	17.10.2024	apl. Prof. Dr. Gaby-Fleur Bül, Prof. Dr. Tim Schulz

**Kommentar**

The **corresponding seminar** takes place during summer term.

For the Richtungsmodul BIO-B-RM2 a 6-week practical is offered as a separate course.

For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)


 <b>110395 VS - Current Aspects of Plant Physiology</b>							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	09:15 - 10:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
1	S	Do	11:00 - 11:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke

**Kommentar**

For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

 <b>110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics</b>							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Lecture as part of the Richtungsmodul and the Wahlpflichtmodul							
1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Seminar as part of the Richtungsmodul and the Wahlpflichtmodul							

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

110400 VS - Developmental Biology of Animals and Plants							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	08:15 - 09:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford
1	S	Mo	10:15 - 11:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford

**Kommentar**

2-week internships as part of 8-CP modules are possible.

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

110405 DF - Bioimage Analysis and Extended Phenotyping							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	09:15 - 10:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	SU	Fr	11:00 - 11:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Kommentar**

1) This will be a hybrid course, Online participation via Zoom (Meeting ID: 655 4521 3465; Passcode: 06185980), exercises sessions also.

2) There will be one week of practical work after the lecture period. We will regularly meet (Online or in person) then, you're encouraged to work in groups there. Details will/can be discussion in the first session and later on if necessary.

3) There is a Moodle.UP course where you will find all kind of materials and discussion forums, <https://moodle2.uni-potsdam.de/course/view.php?id=38039>.

For the 8LP Modules (WM4,5,6) 2-week practicals are offered. This may be an extension of the practical work or something totally different. We will discuss together to find the best fit for you.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question.

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

110442 VS - Cryo Electron Microscopy in Structural Biology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	N.N. (AG)	15.10.2024	Dr. rer. nat. Sasa Petrovic, Prof. Dr. Petra Wendler
1	S	Di	10:15 - 11:45	wöch.	N.N. (AG)	15.10.2024	Prof. Dr. Petra Wendler, Dr. rer. nat. Sasa Petrovic

## Kommentar

Content:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years ( <https://www.nature.com/articles/d41586-020-00341-9> )

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

This course can be taken as a 6CP, 8CP or 11CP module:

6CP: Lecture and seminar

8CP: Lecture, seminar and 2 week practical course

11CP: Lecture seminar and 6 week practical course

Moodle Page: <https://moodle2.uni-potsdam.de/course/view.php?id=18544>

## Literatur

The course will go through the online resources on the Caltech webpage:

<http://cryo-em-course.caltech.edu/videos>

interesting review articles:

<https://www.sciencedirect.com/science/article/pii/S0304416517302374>



<https://dasher.wustl.edu/bio5357/readings/molcell-58-677-15.pdf>

interesting short youtube videos:

<https://www.youtube.com/watch?v=BJKkC0W-6Qk>

<https://www.youtube.com/watch?v=026rzTXb1zw&t=16s>

<https://www.youtube.com/watch?v=Qq8DO-4BnIY>

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

110443 PR - Cryo Electron Microscopy in Structural Biology - practical							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	Di	12:30 - 17:30	wöch.	2.25.D0.02	15.10.2024	Prof. Dr. Petra Wendler, Dr. Jakob Ruickoldt, Thomas Bick, Dr. rer. nat. Sasa Petrovic

**Kommentar**

This course should be combined with the lecture and seminar "Cryo Electron Microscopy in Structural biology" to obtain 8 CP.

Content of lecture and seminar:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years (<https://www.nature.com/articles/d41586-020-00341-9>)

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

110567 VS - Current Aspects and Methods of Plant Cell Biology WPM							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
1	S	Mo	14:00 - 15:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe

**Kommentar**

FIRST MEETING AS INDICATED 16.10.2023 in room 2.25.B0.01 at 12.15 h.

Afterwards, lecture and Seminar take place in house 20, room 2.20.01 from 12.15 h. This winter term there will likely be no (or maximum 1) space for a 2-week practical due to the larger number of students who took the course as an 11 CP and 8 CP course in the summer term. Certainly, the course can be offered as a 6CP elective B-module with lecture and seminar, only. Please, contact Prof. Grebe under markus.grebe@uni-potsdam.de in case of further queries.

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

110614 VS - Physiology of Microorganisms							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	08:15 - 09:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner
1	S	Do	10:15 - 11:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann

**Leistungen in Bezug auf das Modul**

PNL 546211 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM5 - Molecular Biology A**

108867 VS - Cell Biology for Life Scientists (Lecture plus Seminar)							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	16:15 - 17:45	wöch.	2.26.0.66	14.10.2024	Prof. Dr. Ralph Gräf
1	S	Di	16:00 - 17:30	wöch.	2.26.0.53	15.10.2024	Prof. Dr. Ralph Gräf, Dr. Irene Meyer, Dr. Marianne Grafe

**Kommentar**

The contents of the lecture „Cell Biology for Life Scientists“ held in English partially overlaps with Zellbiologie (Tiere) (in German, SoSe). Both lectures can be combined with the seminar within our 6 LP, 8 LP, 11 LP elective modules.

**Bemerkung**

**Please register for the Moodle courses, all information is spread via Moodle!**

Lecture: Gräf,R.: Cell Biology for Life Scientists

Seminar: Gräf,R.: Wahlpflichtmodul - Zelldynamik und Cytoskelett/Cell Biology of Centrosomes and the Nuclear Envelope

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

110091 B - Current Aspects of Plant Metabolism							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke

**Kommentar**

Termin nach Vereinbarung(fettke@uni-potsdam.de)

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

110226 V - Cellular Signal Transduction							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	16:15 - 17:45	wöch.	2.25.B0.01	17.10.2024	apl. Prof. Dr. Gaby-Fleur Böhl, Prof. Dr. Tim Schulz

**Kommentar**

The **corresponding seminar** takes place during summer term.

For the Richtungsmodul BIO-B-RM2 a 6-week practical is offered as a separate course.

For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

110395 VS - Current Aspects of Plant Physiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	09:15 - 10:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
1	S	Do	11:00 - 11:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke

**Kommentar**

For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Lecture as part of the Richtungsmodul and the Wahlpflichtmodul							
1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Seminar as part of the Richtungsmodul and the Wahlpflichtmodul							

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

110400 VS - Developmental Biology of Animals and Plants							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	08:15 - 09:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford
1	S	Mo	10:15 - 11:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford

**Kommentar**

2-week internships as part of 8-CP modules are possible.

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

110405 DF - Bioimage Analysis and Extended Phenotyping							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	09:15 - 10:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	SU	Fr	11:00 - 11:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Kommentar**

1) This will be a hybrid course, Online participation via Zoom (Meeting ID: 655 4521 3465; Passcode: 06185980), exercises sessions also.

2) There will be one week of practical work after the lecture period. We will regularly meet (Online or in person) then, you're encouraged to work in groups there. Details will/can be discussion in the first session and later on if necessary.

3) There is a Moodle.UP course where you will find all kind of materials and discussion forums, <https://moodle2.uni-potsdam.de/course/view.php?id=38039>.

For the 8LP Modules (WM4,5,6) 2-week practicals are offered. This may be an extension of the practical work or something totally different. We will discuss together to find the best fit for you.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question.

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

110537 VS - Molecular Biology and Genome Research							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Mi	12:15 - 13:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Do	08:15 - 09:45	wöch.	2.25.B0.01	17.10.2024	Prof. Dr. Bernd Müller-Röber

**Kommentar**

Introduction with all necessary information to the module structure (lecture, seminar, internships, exams) will be provided during the 1st date of the seminar (18.10.2023 and 19.10.2023) , pdf file of slides also provided in the Moodle course. (Molecular Biology and Genome Research)

**Changed max number for participants per seminar group: 10.**

Assignment to seminar groups can be changed due to student participant number or other necessities.

The **seminar** will discuss review and research papers within the topic frame **Read Genomes, Understand Genomes, Write Genomes, and Manipulate Genomes** .

The seminar is designed as a Scientific Meeting based on active participation of students taking certain roles within different seminars.

Each student has to pick the role of a Speaker on one date and of an Expert Panelist at another date. Please enter your name for a certain role and seminar date in the [table](#) provided in the [link](#) .

**Your role:**

- **Speaker** : The Speaker will present a research paper with emphasis on results, discussion and outlook for this research approach and participate in the panel discussion.
- **Expert Panelist** : There will be an additional panelist, who will discuss questions.

Being Speaker or Expert Panelist:

- you should be able to discuss the contents and to evaluate the quality of the presented paper,
- you should be able to answer the questions given by the lecturer and to raise own questions,
- and participate actively in the discussion.

**Audience** : All other participating students will actively participate in the discussion with questions and remarks on the relevant paper and research topic. At the end of the seminar, the audience will give feedback to the presenter and the expert panelists.

All papers will be available in the Moodle course as pdf.

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

**110567 VS - Current Aspects and Methods of Plant Cell Biology WPM**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
1	S	Mo	14:00 - 15:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe

**Kommentar**

FIRST MEETING AS INDICATED 16.10.2023 in room 2.25.B0.01 at 12.15 h.

Afterwards, lecture and Seminar take place in house 20, room 2.20.01 from 12.15 h. This winter term there will likely be no (or maximum 1) space for a 2-week practical due to the larger number of students who took the course as an 11 CP and 8 CP course in the summer term. Certainly, the course can be offered as a 6CP elective B-module with lecture and seminar, only. Please, contact Prof. Grebe under [markus.grebe@uni-potsdam.de](mailto:markus.grebe@uni-potsdam.de) in case of further queries.

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

**110603 S - Immuntechnologie**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behrsing

Unterrichtsprache Englisch

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

**110605 V - Molecular Biotechnology and Advanced Immunology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behrsing
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

**110614 VS - Physiology of Microorganisms**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	08:15 - 09:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner
1	S	Do	10:15 - 11:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann

**Leistungen in Bezug auf das Modul**

PNL 546311 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM6 - Cellular and Development Biology A**

**108867 VS - Cell Biology for Life Scientists (Lecture plus Seminar)**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	16:15 - 17:45	wöch.	2.26.0.66	14.10.2024	Prof. Dr. Ralph Gräf
1	S	Di	16:00 - 17:30	wöch.	2.26.0.53	15.10.2024	Prof. Dr. Ralph Gräf, Dr. Irene Meyer, Dr. Marianne Grafe

**Kommentar**

The contents of the lecture „Cell Biology for Life Scientists“ held in English partially overlaps with Zellbiologie (Tiere) (in German, SoSe). Both lectures can be combined with the seminar within our 6 LP, 8 LP, 11 LP elective modules.

**Bemerkung**

**Please register for the Moodle courses, all information is spread via Moodle!**

Lecture: Gräf,R.: Cell Biology for Life Scientists

Seminar: Gräf,R.: Wahlpflichtmodul - Zelldynamik und Cytoskelett/Cell Biology of Centrosomes and the Nuclear Envelope

**Leistungen in Bezug auf das Modul**

PNL 546411 - Vorlesung und Seminar (unbenotet)

**110091 B - Current Aspects of Plant Metabolism**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke

**Kommentar**

Termin nach Vereinbarung(fettke@uni-potsdam.de)

**Leistungen in Bezug auf das Modul**

PNL 546411 - Vorlesung und Seminar (unbenotet)

110226 V - Cellular Signal Transduction							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	16:15 - 17:45	wöch.	2.25.B0.01	17.10.2024	apl. Prof. Dr. Gaby-Fleur Böhl, Prof. Dr. Tim Schulz
<b>Kommentar</b>							
The <b>corresponding seminar</b> takes place during summer term.							
For the Richtungsmodul BIO-B-RM2 a 6-week practical is offered as a separate course.							
For the 8LP Modules (WM4,5,6) 2-week practicals are offered.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL	546411 - Vorlesung und Seminar (unbenotet)						

110395 VS - Current Aspects of Plant Physiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	09:15 - 10:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
1	S	Do	11:00 - 11:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
<b>Kommentar</b>							
For the 8LP Modules (WM4,5,6) 2-week practicals are offered.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL	546411 - Vorlesung und Seminar (unbenotet)						

110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Lecture as part of the Richtungsmodul and the Wahlpflichtmodul							



1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
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Seminar as part of the Richtungsmodul and the Wahlpflichtmodul

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 546411 - Vorlesung und Seminar (unbenotet)

**110400 VS - Developmental Biology of Animals and Plants**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	08:15 - 09:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford
1	S	Mo	10:15 - 11:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford

**Kommentar**

2-week internships as part of 8-CP modules are possible.

**Leistungen in Bezug auf das Modul**

PNL 546411 - Vorlesung und Seminar (unbenotet)

**110405 DF - Bioimage Analysis and Extended Phenotyping**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	09:15 - 10:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	SU	Fr	11:00 - 11:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Kommentar**

1) This will be a hybrid course, Online participation via Zoom (Meeting ID: 655 4521 3465; Passcode: 06185980), exercises sessions also.

2) There will be one week of practical work after the lecture period. We will regularly meet (Online or in person) then, you're encouraged to work in groups there. Details will/can be discussion in the first session and later on if necessary.

3) There is a Moodle.UP course where you will find all kind of materials and discussion forums, <https://moodle2.uni-potsdam.de/course/view.php?id=38039>.

For the 8LP Modules (WM4,5,6) 2-week practicals are offered. This may be an extension of the practical work or something totally different. We will discuss together to find the best fit for you.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question.

**Leistungen in Bezug auf das Modul**

PNL 546411 - Vorlesung und Seminar (unbenotet)

110567 VS - Current Aspects and Methods of Plant Cell Biology WPM							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
1	S	Mo	14:00 - 15:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
<b>Kommentar</b>							
FIRST MEETING AS INDICATED 16.10.2023 in room 2.25.B0.01 at 12.15 h.							
Afterwards, lecture and Seminar take place in house 20, room 2.20.01 from 12.15 h. This winter term there will likely be no (or maximum 1) space for a 2-week practical due to the larger number of students who took the course as an 11 CP and 8 CP course in the summer term. Certainly, the course can be offered as a 6CP elective B-module with lecture and seminar, only. Please, contact Prof. Grebe under markus.grebe@uni-potsdam.de in case of further queries.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546411 - Vorlesung und Seminar (unbenotet)							

110614 VS - Physiology of Microorganisms							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	08:15 - 09:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner
1	S	Do	10:15 - 11:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546411 - Vorlesung und Seminar (unbenotet)							

BIO-B-WM7 - Biochemistry B							
109142 VU - Biophysik I							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
Alle	V	Mi	14:15 - 15:45	wöch.	2.28.1.001	16.10.2024	Prof. Dr. Carsten Beta
1	U	Mi	16:15 - 17:45	14t.	2.28.1.001	23.10.2024	Agniva Datta
Physik (3 SWS)							
2	S	Mi	16:15 - 17:45	wöch.	2.28.1.001	16.10.2024	Agniva Datta
Physik 741c + BioChem + MolBiol (4 SWS)							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546511 - Vorlesung und Seminar (unbenotet)							

110090 VS - Moderne Aspekte des pflanzlichen Kohlenhydratstoffwechsels							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
<b>Kommentar</b>							
fakultativ, Termin nach Vereinbarung, Anrechnung für das WP Modul Biochemie Biologie für BS-BIW mgl							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546511 - Vorlesung und Seminar (unbenotet)							

110094 B - Theoretische und Praktische Einführung in die Massenspektrometrie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
Raum und Zeit nach Absprache							
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
Raum und Zeit nach Absprache							

**Leistungen in Bezug auf das Modul**

PNL 546511 - Vorlesung und Seminar (unbenotet)

**110095 VS - Modern aspects of biochemistry and analytics of carbohydrates**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	Dr. Stefanie Barbirz, apl. Prof. Dr. Jörg Fettke

Block course planned from 17.02.2025-28.02.2025. Information seminar in October 2024

**Kommentar**

Carbohydrates as part of glycan structures occur in all domains of life. Due to their ubiquitous role in cell-surface based signaling and information exchange a variety of glycan-based research fields has emerged during the last two decades. Especially developments in molecular biology and modern analytical methods have increased our knowledge about the ubiquitous role of carbohydrates in animals, plants, and bacteria.

The course will enable participants to develop an interdisciplinary perspective on the field of glycobiology. For this, in the beginning, a carbohydrate structure-based understanding of glycan biochemistry will be developed. This covers qualitative and quantitative carbohydrate analytics as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins.

Aim of this course is an insight into the interdisciplinary field of glycobiology. It will present an actual survey of the biochemistry of sugar building blocks, oligo- and polysaccharides in pro- and eukaryotic systems. Moreover, qualitative and quantitative carbohydrate analytics will be covered as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins. Subject areas: Fundamentals on glycoconjugates. Structural and functional principles of the glycan conformational space. N- and O-linked glycosylation. Glycan analysis. Lectins and carbohydrate binding modules. Physicochemical principles of protein-carbohydrate interactions. Glycan arrays. Microbial glycobiology and pathogenesis.

**Leistungen in Bezug auf das Modul**

PNL 546511 - Vorlesung und Seminar (unbenotet)

**110399 VS - Presentation skills for life scientists**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Michael Lenhard
1	S	Fr	10:15 - 11:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard

**Leistungen in Bezug auf das Modul**

PNL 546511 - Vorlesung und Seminar (unbenotet)

**110442 VS - Cryo Electron Microscopy in Structural Biology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	N.N. (AG)	15.10.2024	Dr. rer. nat. Sasa Petrovic, Prof. Dr. Petra Wendler
1	S	Di	10:15 - 11:45	wöch.	N.N. (AG)	15.10.2024	Prof. Dr. Petra Wendler, Dr. rer. nat. Sasa Petrovic

## Kommentar

Content:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years ( <https://www.nature.com/articles/d41586-020-00341-9> )

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

This course can be taken as a 6CP, 8CP or 11CP module:

6CP: Lecture and seminar

8CP: Lecture, seminar and 2 week practical course

11CP: Lecture seminar and 6 week practical course

Moodle Page: <https://moodle2.uni-potsdam.de/course/view.php?id=18544>

## Literatur

The course will go through the online resources on the Caltech webpage:

<http://cryo-em-course.caltech.edu/videos>

interesting review articles:

<https://www.sciencedirect.com/science/article/pii/S0304416517302374>

<https://dasher.wustl.edu/bio5357/readings/molcell-58-677-15.pdf>

interesting short youtube videos:

<https://www.youtube.com/watch?v=BJKkC0W-6Qk>

<https://www.youtube.com/watch?v=026rzTXb1zw&t=16s>

<https://www.youtube.com/watch?v=Qq8DO-4BnIY>

**Leistungen in Bezug auf das Modul**

PNL 546511 - Vorlesung und Seminar (unbenotet)

110603 S - Immunotechnologie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behrsing
Unterrichtssprache Englisch							

**Leistungen in Bezug auf das Modul**

PNL 546511 - Vorlesung und Seminar (unbenotet)

110605 V - Molecular Biotechnology and Advanced Immunology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behrsing
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 546511 - Vorlesung und Seminar (unbenotet)

110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier

**Kommentar**

For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.

**Leistungsnachweis**

Active participation in lecture and seminar  
Oral examination

**Bemerkung**

- The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.
- We will change between on-line lectures and contributions given by student participants.
- The seminar will be organised as block seminar. Information about the dates will be announced.
- Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations
- The course will be given only in winter semester

**Leistungen in Bezug auf das Modul**

PNL 546511 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM8 - Biotechnology B**

 **109142 VU - Biophysik I**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
Alle	V	Mi	14:15 - 15:45	wöch.	2.28.1.001	16.10.2024	Prof. Dr. Carsten Beta
1	U	Mi	16:15 - 17:45	14t.	2.28.1.001	23.10.2024	Agniva Datta
Physik (3 SWS)							
2	S	Mi	16:15 - 17:45	wöch.	2.28.1.001	16.10.2024	Agniva Datta
Physik 741c + BioChem + MolBiol (4 SWS)							

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

 **110090 VS - Moderne Aspekte des pflanzlichen Kohlenhydratstoffwechsels**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke

**Kommentar**

fakultativ, Termin nach Vereinbarung, Anrechnung für das WP Modul Biochemie Biologie für BS-BIW mgl

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

 **110094 B - Theoretische und Praktische Einführung in die Massenspektrometrie**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
Raum und Zeit nach Absprache							
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
Raum und Zeit nach Absprache							

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

 **110095 VS - Modern aspects of biochemistry and analytics of carbohydrates**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	Dr. Stefanie Barbirz, apl. Prof. Dr. Jörg Fettke

Block course planned from 17.02.2025-28.02.2025. Information seminar in October 2024

**Kommentar**

Carbohydrates as part of glycan structures occur in all domains of life. Due to their ubiquitous role in cell-surface based signaling and information exchange a variety of glycan-based research fields has emerged during the last two decades. Especially developments in molecular biology and modern analytical methods have increased our knowledge about the ubiquitous role of carbohydrates in animals, plants, and bacteria.

The course will enable participants to develop an interdisciplinary perspective on the field of glycobiology. For this, in the beginning, a carbohydrate structure-based understanding of glycan biochemistry will be developed. This covers qualitative and quantitative carbohydrate analytics as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins.

Aim of this course is an insight into the interdisciplinary field of glycobiology. It will present an actual survey of the biochemistry of sugar building blocks, oligo- and polysaccharides in pro- and eukaryotic systems. Moreover, qualitative and quantitative carbohydrate analytics will be covered as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins. Subject areas: Fundamentals on glycoconjugates. Structural and functional principles of the glycan conformational space. N- and O-linked glycosylation. Glycan analysis. Lectins and carbohydrate binding modules. Physicochemical principles of protein-carbohydrate interactions. Glycan arrays. Microbial glycobiology and pathogenesis.

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

**110399 VS - Presentation skills for life scientists**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Michael Lenhard
1	S	Fr	10:15 - 11:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

**110603 S - Immuntechnologie**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behrsing

Unterrichtssprache Englisch

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

**110605 V - Molecular Biotechnology and Advanced Immunology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behrsing
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

**110642 VS - Animal Models in Developmental Biology and Cell Physiology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	10:30 - 12:00	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
1	S	Do	12:15 - 13:45	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch

**Leistungen in Bezug auf das Modul**

PNL 546611 - Vorlesung und Seminar (unbenotet)

110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier
<b>Kommentar</b>							
For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.							
<b>Leistungsnachweis</b>							
Active participation in lecture and seminar Oral examination							
<b>Bemerkung</b>							
<ul style="list-style-type: none"> <li>The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.</li> <li>We will change between on-line lectures and contributions given by student participants.</li> <li>The seminar will be organised as block seminar. Information about the dates will be announced.</li> <li>Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations</li> <li>The course will be given only in winter semester</li> </ul>							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546611 - Vorlesung und Seminar (unbenotet)							

BIO-B-WM9 - Protein Science B							
110090 VS - Moderne Aspekte des pflanzlichen Kohlenhydratstoffwechsels							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
<b>Kommentar</b>							
fakultativ, Termin nach Vereinbarung, Anrechnung für das WP Modul Biochemie Biologie für BS-BIW mgl							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546711 - Vorlesung und Seminar (unbenotet)							

110094 B - Theoretische und Praktische Einführung in die Massenspektrometrie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
Raum und Zeit nach Absprache							
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
Raum und Zeit nach Absprache							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546711 - Vorlesung und Seminar (unbenotet)							

110399 VS - Presentation skills for life scientists							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Michael Lenhard
1	S	Fr	10:15 - 11:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard



**Leistungen in Bezug auf das Modul**

PNL 546711 - Vorlesung und Seminar (unbenotet)

**110442 VS - Cryo Electron Microscopy in Structural Biology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	N.N. (AG)	15.10.2024	Dr. rer. nat. Sasa Petrovic, Prof. Dr. Petra Wendler
1	S	Di	10:15 - 11:45	wöch.	N.N. (AG)	15.10.2024	Prof. Dr. Petra Wendler, Dr. rer. nat. Sasa Petrovic

**Kommentar**

Content:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years ( <https://www.nature.com/articles/d41586-020-00341-9> )

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

This course can be taken as a 6CP, 8CP or 11CP module:

6CP: Lecture and seminar

8CP: Lecture, seminar and 2 week practical course

11CP: Lecture seminar and 6 week practical course

Moodle Page: <https://moodle2.uni-potsdam.de/course/view.php?id=18544>

**Literatur**

The course will go through the online resources on the Caltech webpage:

<http://cryo-em-course.caltech.edu/videos>

interesting review articles:

<https://www.sciencedirect.com/science/article/pii/S0304416517302374>

<https://dasher.wustl.edu/bio5357/readings/molcell-58-677-15.pdf>

interesting short youtube videos:

<https://www.youtube.com/watch?v=BJKkC0W-6Qk>

<https://www.youtube.com/watch?v=026rzTXb1zw&t=16s>

<https://www.youtube.com/watch?v=Qq8DO-4BnIY>

**Leistungen in Bezug auf das Modul**

PNL 546711 - Vorlesung und Seminar (unbenotet)

 **110603 S - Immunotechnologie**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behrsing

Unterrichtssprache Englisch

**Leistungen in Bezug auf das Modul**

PNL 546711 - Vorlesung und Seminar (unbenotet)

 **110605 V - Molecular Biotechnology and Advanced Immunology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behrsing
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 546711 - Vorlesung und Seminar (unbenotet)

 **110642 VS - Animal Models in Developmental Biology and Cell Physiology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	10:30 - 12:00	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
1	S	Do	12:15 - 13:45	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch

**Leistungen in Bezug auf das Modul**

PNL 546711 - Vorlesung und Seminar (unbenotet)

110665 VS - Analytical Biochemistry (Nanobiotechnology, Bioelectronics, Bioanalysis)							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	16:15 - 17:45	wöch.	2.25.B2.01	15.10.2024	Prof. Dr. Frank Bier
1	S	Fr	12:15 - 13:45	wöch.	2.25.B2.01	18.10.2024	Prof. Dr. Frank Bier
<b>Kommentar</b>							
For the 8LP Modules (WM1, 2, 3) 2-week practicals are offered. Availability depends on restrictions due to health considerations.							
<b>Leistungsnachweis</b>							
Active participation in lecture and seminar Oral examination							
<b>Bemerkung</b>							
<ul style="list-style-type: none"> <li>The course contains lectures about current research topics in the field of biosensors, bioelectrochemistry, nanotechnology, bioanalytics and molecular diagnostics.</li> <li>We will change between on-line lectures and contributions given by student participants.</li> <li>The seminar will be organised as block seminar. Information about the dates will be announced.</li> <li>Students who want to do a lab practical need to register for the Practical in PULS. Arrangements with external laboratories are advised due to limited lab capacity of the course teacher and health considerations</li> <li>The course will be given only in winter semester</li> </ul>							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546711 - Vorlesung und Seminar (unbenotet)							

BIO-B-WM10 - Genome Research and Systems Biology B							
110091 B - Current Aspects of Plant Metabolism							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke
<b>Kommentar</b>							
Termin nach Vereinbarung(fettke@uni-potsdam.de)							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546811 - Vorlesung und Seminar (unbenotet)							

110131 VU - Bioinformatik biologischer Sequenzen / Evolutionary Genomics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.70.0.11	15.10.2024	Dr. Stefanie Hartmann
1	U	Di	10:15 - 11:45	wöch.	2.70.0.01	15.10.2024	Dr. Stefanie Hartmann

**Kommentar**

This course does not have an online option, you will need to be present for the lectures and computer labs. For the computer labs of this course, you will need an account on the university's HPC cluster. This account is tied to your university account, so you can only apply for the cluster account once you are enrolled and have your university ID. Please generate and activate your ssh key-pair as described here: [https://docs.hpc.uni-potsdam.de/overview/getting\\_access.html](https://docs.hpc.uni-potsdam.de/overview/getting_access.html) (Note: this site is only available from within the university's network. From anywhere and to get started, see <https://www.uni-potsdam.de/de/zim/angebote-loesungen/hpc> ) Copy the key-pair to a USB flash drive and bring it to the first computer lab. Note: the USB drive with your ssh keys, the folder(s) in which you're storing them, and the files of the keys should not have spaces in them. Special symbols and umlauts are a bad idea as well. Please rename files and folders accordingly.

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

110226 V - Cellular Signal Transduction							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	16:15 - 17:45	wöch.	2.25.B0.01	17.10.2024	apl. Prof. Dr. Gaby-Fleur Böhl, Prof. Dr. Tim Schulz

**Kommentar**

The **corresponding seminar** takes place during summer term.  
 For the Richtungsmodul BIO-B-RM2 a 6-week practical is offered as a separate course.  
 For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

110382 DF - Introduction to databases and practical programming							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:15	wöch.	2.70.0.01	18.10.2024	Dr. Detlef Groth
1	SU	Fr	09:45 - 11:45	wöch.	2.70.0.01	18.10.2024	Dr. Detlef Groth

**Kommentar**

Dear students,  
 for those students which does not yet have the Moodle course link, here it is:  
<https://moodle2.uni-potsdam.de/course/view.php?id=39233>  
 The course key is:  
 Golm2324X  
 There will be a parallel Zoom session mainly for students not yet in Germany or in case your aren't fit. Here is the Zoom link:  
<https://uni-potsdam.zoom.us/j/94438873701> (Password: 21955051) Fri 08:15-11:45  
 Detlef Groth

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

110385 VS - Statistical Bioinformatics for MS-BAM							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.70.0.10	16.10.2024	Dr. Detlef Groth, apl. Prof. Dr. Dirk Walther
1	S	Mi	12:15 - 13:45	wöch.	2.70.0.01	16.10.2024	Dr. Detlef Groth, apl. Prof. Dr. Dirk Walther

<b>Kommentar</b>
Number of participants limited to 50 including students of the MS-BIS.
<b>Leistungen in Bezug auf das Modul</b>
PNL 546811 - Vorlesung und Seminar (unbenotet)

110395 VS - Current Aspects of Plant Physiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	09:15 - 10:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
1	S	Do	11:00 - 11:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke

<b>Kommentar</b>
For the 8LP Modules (WM4,5,6) 2-week practicals are offered.
<b>Leistungen in Bezug auf das Modul</b>
PNL 546811 - Vorlesung und Seminar (unbenotet)

110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Lecture as part of the Richtungsmodul and the Wahlpflichtmodul							
1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Seminar as part of the Richtungsmodul and the Wahlpflichtmodul							

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

**110399 VS - Presentation skills for life scientists**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Michael Lenhard
1	S	Fr	10:15 - 11:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

**110400 VS - Developmental Biology of Animals and Plants**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	08:15 - 09:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford
1	S	Mo	10:15 - 11:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford

**Kommentar**

2-week internships as part of 8-CP modules are possible.

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

**110404 B - Analysis of high-throughput sequencing data**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Bemerkung**

This is a block course mixing lectures and hands-on work (exercises). It will most likely take place from **26 February to 8 March 2024**, 9 am to 5 pm. It will be in hybrid form, in the computer pools D2.01 und D2.02 in house 25 (Potsdam Golm) and Online via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769).

There will be three information/discussion meetings via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769), feel free to join them.

- 4 October 2023, 12 to 1 pm
- 16 October 2023, 12 to 1 pm
- 6 November 2023, 12 to 1 pm

Those meetings are not mandatory, you may join any time. If you cannot make it and would like to have another one, please contact the lecturer (see below).

[2023-11-06] If you are interested in attending an additional meeting before the enrollment period closes this week, please indicate your availability by filling out the poll at the following link: <https://doodle.com/meeting/participate/id/aznNBAYa>

**[2023-11-07] There will be two other Zoom meetings: the first one is today, November 7, at 8:15 pm. The second one is on Friday, November 10, at 1 pm. Meeting ID: 686 6154 6081, Passcode: 06444769**

If you choose to participate Online, you will just need to have access to a simple PC for the time of the course. The only thing you need is a Web Browser and a Linux Terminal. In Windows you may use tools like Putty (<https://www.putty.org/>) or MobaXTerm (<https://mobaxterm.mobatek.net/download.html>, Home Edition). Some prior knowledge about the Linux Terminal may be helpful also, you can find a good starter here: <http://swcarpentry.github.io/shell-novice/>.

You should have some knowledge about biology to get most out of this course. Also attending the [Evolutionary Genomics](#) course taught by Stefanie Hartmann may be a very good option in every case.

You may find a rough description of the course in the Bioinformatics module guide, BIO-MBIW08 ([https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente\\_und\\_%C3%9Cbersichten/Studium\\_und\\_Lehre/Module\\_Guide\\_Bioinformatics\\_EN.pdf](https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente_und_%C3%9Cbersichten/Studium_und_Lehre/Module_Guide_Bioinformatics_EN.pdf)).

There is a Moodle page for this course: HTS2024, <https://moodle2.uni-potsdam.de/course/view.php?id=38040>.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question or if you need some special arrangements.

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

110405 DF - Bioimage Analysis and Extended Phenotyping							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	09:15 - 10:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	SU	Fr	11:00 - 11:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Kommentar**

1) This will be a hybrid course, Online participation via Zoom (Meeting ID: 655 4521 3465; Passcode: 06185980), exercises sessions also.

2) There will be one week of practical work after the lecture period. We will regularly meet (Online or in person) then, you're encouraged to work in groups there. Details will/can be discussion in the first session and later on if necessary.

3) There is a Moodle.UP course where you will find all kind of materials and discussion forums, <https://moodle2.uni-potsdam.de/course/view.php?id=38039> .

For the 8LP Modules (WM4,5,6) 2-week practicals are offered. This may be an extension of the practical work or something totally different. We will discuss together to find the best fit for you.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question.

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

110442 VS - Cryo Electron Microscopy in Structural Biology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	N.N. (AG)	15.10.2024	Dr. rer. nat. Sasa Petrovic, Prof. Dr. Petra Wendler
1	S	Di	10:15 - 11:45	wöch.	N.N. (AG)	15.10.2024	Prof. Dr. Petra Wendler, Dr. rer. nat. Sasa Petrovic



## Kommentar

Content:

Structural biology is the study of how biological molecules are built. Only if we know their structure, we can deduce important information on their function, their assembly and their ability to interact. Cryo electron microscopy has revolutionised structural biology in the recent years ( <https://www.nature.com/articles/d41586-020-00341-9> )

The course covers theory and advanced image analysis techniques in transmission electron microscopy (TEM). In the lecture the following topics are explained:

- buildup of a TEM, electron guns, holders and detectors
- theory of diffraction, image formation, how electrons interact with material; contrast transfer function
- theory behind high resolution cryo TEM
- sample preparation and image acquisition in (single particle) TEM
- 2D and 3D image analysis
- point group symmetries
- refinement and validation of 3D reconstructions
- visualisation and interpretation of TEM results

During the seminar the students will analyse current TEM results from subject-specific English literature, summarize the key aspects of the work and discuss the research outcome critically.

The practical course will cover hands-on practical work on the transmission electron microscope as well as single-particle image processing of a high-resolution cryo EM data set. The TEM work will include

- negative staining of a protein complex
- loading of the grid into the NS holder
- setting up a negative stain data collection in the data acquisition software
- freezing of a cryo EM grid
- demonstration of the entire cryo EM workflow

The image processing will be undertaken on the teaching server of the IBB using the computer pools in building 25 (Campus Golm). Students will learn how to work with the linux based server system and the EM processing software Relion. Students will learn how to assess the quality of the data and how to get from individual images to a high-resolution 3D model of the protein complex.

Learning outcomes:

1. Subject-specific competences:

At the end of the course the students will have learned and understood the underlying theory in transmission electron microscopy and single particle image analysis. They will be able to identify suitable TEM applications to a biological question and will have gained insight into the current state of the art in cryo electron microscopy. They will also have analysed the structure and function of diverse biological complexes.

2. Methods-specific competences:

The students learn to interpret, analyse and present results derived from subject-specific, English literature. They will also learn how to prepare a TEM sample, how to operate a TEM, how to analyse TEM images and how to interpret TEM data.

3. Action competence:

The students present and defend scientific work in a public seminar using suitable presentation media. The students learn to work in a team, give constructive feedback and assess each other in a public seminar. When participating in the practical course students will learn to collect and assess scientific data. Furthermore they will summarize experimental data in a detailed protocol and evaluate their results.

This course can be taken as a 6CP, 8CP or 11CP module:

6CP: Lecture and seminar

8CP: Lecture, seminar and 2 week practical course

11CP: Lecture seminar and 6 week practical course

Moodle Page: <https://moodle2.uni-potsdam.de/course/view.php?id=18544>

## Literatur

The course will go through the online resources on the Caltech webpage:

<http://cryo-em-course.caltech.edu/videos>

interesting review articles:

<https://www.sciencedirect.com/science/article/pii/S0304416517302374>

<https://dasher.wustl.edu/bio5357/readings/molcell-58-677-15.pdf>

interesting short youtube videos:

<https://www.youtube.com/watch?v=BJKkC0W-6Qk>

<https://www.youtube.com/watch?v=026rzTXb1zw&t=16s>

<https://www.youtube.com/watch?v=Qq8DO-4BnIY>

#### Leistungen in Bezug auf das Modul

PNL 546811 - Vorlesung und Seminar (unbenotet)

110537 VS - Molecular Biology and Genome Research							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Mi	12:15 - 13:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Do	08:15 - 09:45	wöch.	2.25.B0.01	17.10.2024	Prof. Dr. Bernd Müller-Röber

#### Kommentar

Introduction with all necessary information to the module structure (lecture, seminar, internships, exams) will be provided during the 1st date of the seminar (18.10.2023 and 19.10.2023) , pdf file of slides also provided in the Moodle course. (Molecular Biology and Genome Research)

#### Changed max number for participants per seminar group: 10.

Assignment to seminar groups can be changed due to student participant number or other necessities.

The **seminar** will discuss review and research papers within the topic frame **Read Genomes, Understand Genomes, Write Genomes, and Manipulate Genomes** .

The seminar is designed as a Scientific Meeting based on active participation of students taking certain roles within different seminars.

Each student has to pick the role of a Speaker on one date and of an Expert Panelist at another date. Please enter your name for a certain role and seminar date in the [table](#) provided in the [link](#) .

#### Your role:

- **Speaker** : The Speaker will present a research paper with emphasis on results, discussion and outlook for this research approach and participate in the panel discussion.
- **Expert Panelist** : There will be an additional panelist, who will discuss questions.

Being Speaker or Expert Panelist:

- you should be able to discuss the contents and to evaluate the quality of the presented paper,
- you should be able to answer the questions given by the lecturer and to raise own questions,
- and participate actively in the discussion.

**Audience** : All other participating students will actively participate in the discussion with questions and remarks on the relevant paper and research topic. At the end of the seminar, the audience will give feedback to the presenter and the expert panelists.

All papers will be available in the Moodle course as pdf.

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

**110567 VS - Current Aspects and Methods of Plant Cell Biology WPM**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
1	S	Mo	14:00 - 15:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe

**Kommentar**

FIRST MEETING AS INDICATED 16.10.2023 in room 2.25.B0.01 at 12.15 h.

Afterwards, lecture and Seminar take place in house 20, room 2.20.01 from 12.15 h. This winter term there will likely be no (or maximum 1) space for a 2-week practical due to the larger number of students who took the course as an 11 CP and 8 CP course in the summer term. Certainly, the course can be offered as a 6CP elective B-module with lecture and seminar, only. Please, contact Prof. Grebe under markus.grebe@uni-potsdam.de in case of further queries.

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

**110614 VS - Physiology of Microorganisms**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	08:15 - 09:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner
1	S	Do	10:15 - 11:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

**110642 VS - Animal Models in Developmental Biology and Cell Physiology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	10:30 - 12:00	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
1	S	Do	12:15 - 13:45	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch

**Leistungen in Bezug auf das Modul**

PNL 546811 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM11 - Molecular Biology B**

**108867 VS - Cell Biology for Life Scientists (Lecture plus Seminar)**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	16:15 - 17:45	wöch.	2.26.0.66	14.10.2024	Prof. Dr. Ralph Gräf
1	S	Di	16:00 - 17:30	wöch.	2.26.0.53	15.10.2024	Prof. Dr. Ralph Gräf, Dr. Irene Meyer, Dr. Marianne Grafe

**Kommentar**

The contents of the lecture „Cell Biology for Life Scientists“ held in English partially overlaps with Zellbiologie (Tiere) (in German, SoSe). Both lectures can be combined with the seminar within our 6 LP, 8 LP, 11 LP elective modules.

**Bemerkung**

**Please register for the Moodle courses, all information is spread via Moodle!**

Lecture: Gräf,R.: Cell Biology for Life Scientists

Seminar: Gräf,R.: Wahlpflichtmodul - Zelldynamik und Cytoskelett/Cell Biology of Centrosomes and the Nuclear Envelope

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110091 B - Current Aspects of Plant Metabolism**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke

**Kommentar**

Termin nach Vereinbarung(fettke@uni-potsdam.de)

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110131 VU - Bioinformatik biologischer Sequenzen / Evolutionary Genomics**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.70.0.11	15.10.2024	Dr. Stefanie Hartmann
1	U	Di	10:15 - 11:45	wöch.	2.70.0.01	15.10.2024	Dr. Stefanie Hartmann

**Kommentar**

This course does not have an online option, you will need to be present for the lectures and computer labs. For the computer labs of this course, you will need an account on the university's HPC cluster. This account is tied to your university account, so you can only apply for the cluster account once you are enrolled and have your university ID. Please generate and activate your ssh key-pair as described here: [https://docs.hpc.uni-potsdam.de/overview/getting\\_access.html](https://docs.hpc.uni-potsdam.de/overview/getting_access.html) (Note: this site is only available from within the university's network. From anywhere and to get started, see <https://www.uni-potsdam.de/de/zim/angebote-loesungen/hpc> ) Copy the key-pair to a USB flash drive and bring it to the first computer lab. Note: the USB drive with your ssh keys, the folder(s) in which you're storing them, and the files of the keys should not have spaces in them. Special symbols and umlauts are a bad idea as well. Please rename files and folders accordingly.

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110226 V - Cellular Signal Transduction**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	16:15 - 17:45	wöch.	2.25.B0.01	17.10.2024	apl. Prof. Dr. Gaby-Fleur Böhl, Prof. Dr. Tim Schulz

**Kommentar**

The **corresponding seminar** takes place during summer term.  
 For the Richtungsmodul BIO-B-RM2 a 6-week practical is offered as a separate course.  
 For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

110385 VS - Statistical Bioinformatics for MS-BAM							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.70.0.10	16.10.2024	Dr. Detlef Groth, apl. Prof. Dr. Dirk Walther
1	S	Mi	12:15 - 13:45	wöch.	2.70.0.01	16.10.2024	Dr. Detlef Groth, apl. Prof. Dr. Dirk Walther
<b>Kommentar</b>							
Number of participants limited to 50 including students of the MS-BIS.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546911 - Vorlesung und Seminar (unbenotet)							

110395 VS - Current Aspects of Plant Physiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	09:15 - 10:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
1	S	Do	11:00 - 11:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
<b>Kommentar</b>							
For the 8LP Modules (WM4,5,6) 2-week practicals are offered.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 546911 - Vorlesung und Seminar (unbenotet)							

110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Lecture as part of the Richtungsmodul and the Wahlpflichtmodul							

1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
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Seminar as part of the Richtungsmodul and the Wahlpflichtmodul

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110399 VS - Presentation skills for life scientists**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Michael Lenhard
1	S	Fr	10:15 - 11:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110400 VS - Developmental Biology of Animals and Plants**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	08:15 - 09:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford
1	S	Mo	10:15 - 11:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford

**Kommentar**

2-week internships as part of 8-CP modules are possible.

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110404 B - Analysis of high-throughput sequencing data**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Bemerkung**

This is a block course mixing lectures and hands-on work (exercises). It will most likely take place from **26 February to 8 March 2024**, 9 am to 5 pm. It will be in hybrid form, in the computer pools D2.01 und D2.02 in house 25 (Potsdam Golm) and Online via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769).

There will be three information/discussion meetings via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769), feel free to join them.

- 4 October 2023, 12 to 1 pm
- 16 October 2023, 12 to 1 pm
- 6 November 2023, 12 to 1 pm

Those meetings are not mandatory, you may join any time. If you cannot make it and would like to have another one, please contact the lecturer (see below).

[2023-11-06] If you are interested in attending an additional meeting before the enrollment period closes this week, please indicate your availability by filling out the poll at the following link: <https://doodle.com/meeting/participate/id/aznNBAYa>

**[2023-11-07] There will be two other Zoom meetings: the first one is today, November 7, at 8:15 pm. The second one is on Friday, November 10, at 1 pm. Meeting ID: 686 6154 6081, Passcode: 06444769**

If you choose to participate Online, you will just need to have access to a simple PC for the time of the course. The only thing you need is a Web Browser and a Linux Terminal. In Windows you may use tools like Putty (<https://www.putty.org/>) or MobaXTerm (<https://mobaxterm.mobatek.net/download.html>, Home Edition). Some prior knowledge about the Linux Terminal may be helpful also, you can find a good starter here: <http://swcarpentry.github.io/shell-novice/>.

You should have some knowledge about biology to get most out of this course. Also attending the [Evolutionary Genomics](#) course taught by Stefanie Hartmann may be a very good option in every case.

You may find a rough description of the course in the Bioinformatics module guide, BIO-MBIW08 ([https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente\\_und\\_%C3%9Cbersichten/Studium\\_und\\_Lehre/Module\\_Guide\\_Bioinformatics\\_EN.pdf](https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente_und_%C3%9Cbersichten/Studium_und_Lehre/Module_Guide_Bioinformatics_EN.pdf)).

There is a Moodle page for this course: HTS2024, <https://moodle2.uni-potsdam.de/course/view.php?id=38040>.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question or if you need some special arrangements.

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

110405 DF - Bioimage Analysis and Extended Phenotyping							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	09:15 - 10:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	SU	Fr	11:00 - 11:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Kommentar**

1) This will be a hybrid course, Online participation via Zoom (Meeting ID: 655 4521 3465; Passcode: 06185980), exercises sessions also.

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For the 8LP Modules (WM4,5,6) 2-week practicals are offered. This may be an extension of the practical work or something totally different. We will discuss together to find the best fit for you.

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**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

110537 VS - Molecular Biology and Genome Research							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Mi	12:15 - 13:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Do	08:15 - 09:45	wöch.	2.25.B0.01	17.10.2024	Prof. Dr. Bernd Müller-Röber



**Kommentar**

Introduction with all necessary information to the module structure (lecture, seminar, internships, exams) will be provided during the 1st date of the seminar (18.10.2023 and 19.10.2023) , pdf file of slides also provided in the Moodle course. (Molecular Biology and Genome Research)

**Changed max number for participants per seminar group: 10.**

Assignment to seminar groups can be changed due to student participant number or other necessities.

The **seminar** will discuss review and research papers within the topic frame **Read Genomes, Understand Genomes, Write Genomes, and Manipulate Genomes** .

The seminar is designed as a Scientific Meeting based on active participation of students taking certain roles within different seminars.

Each student has to pick the role of a Speaker on one date and of an Expert Panelist at another date. Please enter your name for a certain role and seminar date in the [table](#) provided in the [link](#) .

**Your role:**

- **Speaker** : The Speaker will present a research paper with emphasis on results, discussion and outlook for this research approach and participate in the panel discussion.
- **Expert Panelist** : There will be an additional panelist, who will discuss questions.

Being Speaker or Expert Panelist:

- you should be able to discuss the contents and to evaluate the quality of the presented paper,
- you should be able to answer the questions given by the lecturer and to raise own questions,
- and participate actively in the discussion.

**Audience** : All other participating students will actively participate in the discussion with questions and remarks on the relevant paper and research topic. At the end of the seminar, the audience will give feedback to the presenter and the expert panelists.

All papers will be available in the Moodle course as pdf.

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110567 VS - Current Aspects and Methods of Plant Cell Biology WPM**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
1	S	Mo	14:00 - 15:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe

**Kommentar**

FIRST MEETING AS INDICATED 16.10.2023 in room 2.25.B0.01 at 12.15 h.

Afterwards, lecture and Seminar take place in house 20, room 2.20.01 from 12.15 h. This winter term there will likely be no (or maximum 1) space for a 2-week practical due to the larger number of students who took the course as an 11 CP and 8 CP course in the summer term. Certainly, the course can be offered as a 6CP elective B-module with lecture and seminar, only. Please, contact Prof. Grebe under [markus.grebe@uni-potsdam.de](mailto:markus.grebe@uni-potsdam.de) in case of further queries.

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110603 S - Immuntechnologie**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Fr	12:15 - 13:45	14t.	2.25.B0.01	18.10.2024	Dr. rer. nat. Olaf Behrsing

Unterrichtsprache Englisch

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110605 V - Molecular Biotechnology and Advanced Immunology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	08:15 - 09:45	wöch.	2.25.F0.01	16.10.2024	Dr. rer. nat. Olaf Behrsing
Advanced Immunology, Unterrichtssprache Englisch							
1	V	Do	12:15 - 13:45	wöch.	2.28.0.108	17.10.2024	Prof. Dr. Katja Arndt
Molecular Biotechnology							

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110614 VS - Physiology of Microorganisms**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	08:15 - 09:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner
1	S	Do	10:15 - 11:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**110642 VS - Animal Models in Developmental Biology and Cell Physiology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	10:30 - 12:00	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
1	S	Do	12:15 - 13:45	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch

**Leistungen in Bezug auf das Modul**

PNL 546911 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM12 - Cellular and Development Biology B**

**108867 VS - Cell Biology for Life Scientists (Lecture plus Seminar)**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	16:15 - 17:45	wöch.	2.26.0.66	14.10.2024	Prof. Dr. Ralph Gräf
1	S	Di	16:00 - 17:30	wöch.	2.26.0.53	15.10.2024	Prof. Dr. Ralph Gräf, Dr. Irene Meyer, Dr. Marianne Grafe

**Kommentar**

The contents of the lecture „Cell Biology for Life Scientists“ held in English partially overlaps with Zellbiologie (Tiere) (in German, SoSe). Both lectures can be combined with the seminar within our 6 LP, 8 LP, 11 LP elective modules.

**Bemerkung**

**Please register for the Moodle courses, all information is spread via Moodle!**

Lecture: Gräf,R.: Cell Biology for Life Scientists

Seminar: Gräf,R.: Wahlpflichtmodul - Zelldynamik und Cytoskelett/Cell Biology of Centrosomes and the Nuclear Envelope

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

109142 VU - Biophysik I							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
Alle	V	Mi	14:15 - 15:45	wöch.	2.28.1.001	16.10.2024	Prof. Dr. Carsten Beta
1	U	Mi	16:15 - 17:45	14t.	2.28.1.001	23.10.2024	Agniva Datta
Physik (3 SWS)							
2	S	Mi	16:15 - 17:45	wöch.	2.28.1.001	16.10.2024	Agniva Datta
Physik 741c + BioChem + MolBiol (4 SWS)							

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

110091 B - Current Aspects of Plant Metabolism							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	apl. Prof. Dr. Jörg Fettke

**Kommentar**

Termin nach Vereinbarung(fettke@uni-potsdam.de)

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

110226 V - Cellular Signal Transduction							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	16:15 - 17:45	wöch.	2.25.B0.01	17.10.2024	apl. Prof. Dr. Gaby-Fleur Böhl, Prof. Dr. Tim Schulz

**Kommentar**

The **corresponding seminar** takes place during summer term.

For the Richtungsmodul BIO-B-RM2 a 6-week practical is offered as a separate course.

For the 8LP Modules (WM4,5,6) 2-week practicals are offered.

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

110382 DF - Introduction to databases and practical programming							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:15	wöch.	2.70.0.01	18.10.2024	Dr. Detlef Groth
1	SU	Fr	09:45 - 11:45	wöch.	2.70.0.01	18.10.2024	Dr. Detlef Groth

**Kommentar**

Dear students,  
for those students which does not yet have the Moodle course link, here it is:  
<https://moodle2.uni-potsdam.de/course/view.php?id=39233>

The course key is:

Golm2324X

There will be a parallel Zoom session mainly for students not yet in Germany or in case your aren't fit. Here is the Zoom link:  
<https://uni-potsdam.zoom.us/j/94438873701> (Password: 21955051) Fri 08:15-11:45  
Detlef Groth

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

110385 VS - Statistical Bioinformatics for MS-BAM							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.70.0.10	16.10.2024	Dr. Detlef Groth, apl. Prof. Dr. Dirk Walther
1	S	Mi	12:15 - 13:45	wöch.	2.70.0.01	16.10.2024	Dr. Detlef Groth, apl. Prof. Dr. Dirk Walther
<b>Kommentar</b>							
Number of participants limited to 50 including students of the MS-BIS.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 547011 - Vorlesung und Seminar (unbenotet)							

110395 VS - Current Aspects of Plant Physiology							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	09:15 - 10:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
1	S	Do	11:00 - 11:45	wöch.	N.N. (ext)	17.10.2024	Prof. Dr. Michael Lenhard, Dr. Ivan Acosta, Dr. Marion Clavel, Dr. Daniel Dunkelmann, Dr. Duarte Dionisio Figueiredo, Dr. Joachim Forner, Dr. Enrique Gonzalez Duran, Dr. Caroline Gutjahr, Dr. Marco Incarbone, Dr. Hua Jiang, Dr. Vanessa Loiacono, Dr. John Lunn, Prof. Dr. Claudia Köhler, Dr. Joachim Kopka, Dr. Arun Sampathkumar, Dr. Reimo Zoschke
<b>Kommentar</b>							
For the 8LP Modules (WM4,5,6) 2-week practicals are offered.							
<b>Leistungen in Bezug auf das Modul</b>							
PNL 547011 - Vorlesung und Seminar (unbenotet)							

110398 VS - Current Problems and Modern Methods in Plant Genetics and Epigenetics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Di	08:15 - 09:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
Lecture as part of the Richtungsmodul and the Wahlpflichtmodul							

1	S	Di	10:15 - 11:45	wöch.	2.25.B0.01	15.10.2024	Prof. Dr. Michael Lenhard, Prof. Dr. Isabel Bäurle, Dr. Tim Crawford, Dr. Duarte Dionisio Figueiredo, Dr. Reimo Zoschke
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Seminar as part of the Richtungsmodul and the Wahlpflichtmodul

**Kommentar**

2-week research practical are offered as part of the 8-LP Wahlpflichtmodule; date to be agreed on

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

**110399 VS - Presentation skills for life scientists**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Michael Lenhard
1	S	Fr	10:15 - 11:45	wöch.	2.25.B0.01	18.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

**110400 VS - Developmental Biology of Animals and Plants**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	08:15 - 09:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford
1	S	Mo	10:15 - 11:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Isabel Bäurle, Prof. Dr. Michael Lenhard, Dr. Tim Crawford

**Kommentar**

2-week internships as part of 8-CP modules are possible.

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

**110404 B - Analysis of high-throughput sequencing data**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Bemerkung**

This is a block course mixing lectures and hands-on work (exercises). It will most likely take place from **26 February to 8 March 2024**, 9 am to 5 pm. It will be in hybrid form, in the computer pools D2.01 und D2.02 in house 25 (Potsdam Golm) and Online via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769).

There will be three information/discussion meetings via Zoom (Meeting ID: 686 6154 6081, Passcode: 06444769), feel free to join them.

- 4 October 2023, 12 to 1 pm
- 16 October 2023, 12 to 1 pm
- 6 November 2023, 12 to 1 pm

Those meetings are not mandatory, you may join any time. If you cannot make it and would like to have another one, please contact the lecturer (see below).

[2023-11-06] If you are interested in attending an additional meeting before the enrollment period closes this week, please indicate your availability by filling out the poll at the following link: <https://doodle.com/meeting/participate/id/aznNBAYa>

**[2023-11-07] There will be two other Zoom meetings: the first one is today, November 7, at 8:15 pm. The second one is on Friday, November 10, at 1 pm. Meeting ID: 686 6154 6081, Passcode: 06444769**

If you choose to participate Online, you will just need to have access to a simple PC for the time of the course. The only thing you need is a Web Browser and a Linux Terminal. In Windows you may use tools like Putty (<https://www.putty.org/>) or MobaXTerm (<https://mobaxterm.mobatek.net/download.html>, Home Edition). Some prior knowledge about the Linux Terminal may be helpful also, you can find a good starter here: <http://swcarpentry.github.io/shell-novice/>.

You should have some knowledge about biology to get most out of this course. Also attending the [Evolutionary Genomics](#) course taught by Stefanie Hartmann may be a very good option in every case.

You may find a rough description of the course in the Bioinformatics module guide, BIO-MBIW08 ([https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente\\_und\\_%C3%9Cbersichten/Studium\\_und\\_Lehre/Module\\_Guide\\_Bioinformatics\\_EN.pdf](https://www.uni-potsdam.de/fileadmin01/projects/mnfakul/Dokumente_und_%C3%9Cbersichten/Studium_und_Lehre/Module_Guide_Bioinformatics_EN.pdf)).

There is a Moodle page for this course: HTS2024, <https://moodle2.uni-potsdam.de/course/view.php?id=38040>.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question or if you need some special arrangements.

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

110405 DF - Bioimage Analysis and Extended Phenotyping							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	09:15 - 10:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	SU	Fr	11:00 - 11:45	wöch.	2.25.B2.01	18.10.2024	Dr. Christian Kappel
1	B	N.N.	N.N.	Block	N.N.	N.N.	Dr. Christian Kappel

**Kommentar**

1) This will be a hybrid course, Online participation via Zoom (Meeting ID: 655 4521 3465; Passcode: 06185980), exercises sessions also.

2) There will be one week of practical work after the lecture period. We will regularly meet (Online or in person) then, you're encouraged to work in groups there. Details will/can be discussion in the first session and later on if necessary.

3) There is a Moodle.UP course where you will find all kind of materials and discussion forums, <https://moodle2.uni-potsdam.de/course/view.php?id=38039> .

For the 8LP Modules (WM4,5,6) 2-week practicals are offered. This may be an extension of the practical work or something totally different. We will discuss together to find the best fit for you.

Please contact [christian.kappel@uni-potsdam.de](mailto:christian.kappel@uni-potsdam.de) for any question.

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

110537 VS - Molecular Biology and Genome Research							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	10:15 - 11:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Mi	12:15 - 13:45	wöch.	2.25.B0.01	16.10.2024	Prof. Dr. Bernd Müller-Röber
1	S	Do	08:15 - 09:45	wöch.	2.25.B0.01	17.10.2024	Prof. Dr. Bernd Müller-Röber

**Kommentar**

Introduction with all necessary information to the module structure (lecture, seminar, internships, exams) will be provided during the 1st date of the seminar (18.10.2023 and 19.10.2023) , pdf file of slides also provided in the Moodle course. (Molecular Biology and Genome Research)

**Changed max number for participants per seminar group: 10.**

Assignment to seminar groups can be changed due to student participant number or other necessities.

The **seminar** will discuss review and research papers within the topic frame **Read Genomes, Understand Genomes, Write Genomes, and Manipulate Genomes** .

The seminar is designed as a Scientific Meeting based on active participation of students taking certain roles within different seminars.

Each student has to pick the role of a Speaker on one date and of an Expert Panelist at another date. Please enter your name for a certain role and seminar date in the [table](#) provided in the [link](#) .

**Your role:**

- **Speaker** : The Speaker will present a research paper with emphasis on results, discussion and outlook for this research approach and participate in the panel discussion.
- **Expert Panelist** : There will be an additional panelist, who will discuss questions.

Being Speaker or Expert Panelist:

- you should be able to discuss the contents and to evaluate the quality of the presented paper,
- you should be able to answer the questions given by the lecturer and to raise own questions,
- and participate actively in the discussion.

**Audience** : All other participating students will actively participate in the discussion with questions and remarks on the relevant paper and research topic. At the end of the seminar, the audience will give feedback to the presenter and the expert panelists.

All papers will be available in the Moodle course as pdf.

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

**110567 VS - Current Aspects and Methods of Plant Cell Biology WPM**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	12:15 - 13:45	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe
1	S	Mo	14:00 - 15:30	wöch.	2.25.B0.01	14.10.2024	Prof. Dr. Markus Grebe

**Kommentar**

FIRST MEETING AS INDICATED 16.10.2023 in room 2.25.B0.01 at 12.15 h.

Afterwards, lecture and Seminar take place in house 20, room 2.20.01 from 12.15 h. This winter term there will likely be no (or maximum 1) space for a 2-week practical due to the larger number of students who took the course as an 11 CP and 8 CP course in the summer term. Certainly, the course can be offered as a 6CP elective B-module with lecture and seminar, only. Please, contact Prof. Grebe under [markus.grebe@uni-potsdam.de](mailto:markus.grebe@uni-potsdam.de) in case of further queries.

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

**110614 VS - Physiology of Microorganisms**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	08:15 - 09:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann, Prof. Dr. Susanne Liebner



1	S	Do	10:15 - 11:45	wöch.	2.25.B2.01	17.10.2024	Prof. Dr. Elke Dittmann-Thünemann
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**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

**110642 VS - Animal Models in Developmental Biology and Cell Physiology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	10:30 - 12:00	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch
1	S	Do	12:15 - 13:45	wöch.	2.26.0.53	17.10.2024	Prof. Dr. Salim Seyfried, Dr. Claudia Rödel, Dr. Juliane Münch

**Leistungen in Bezug auf das Modul**

PNL 547011 - Vorlesung und Seminar (unbenotet)

**BIO-B-WM13 - Current Research in Biochemistry and Molecular Biology in Local Research Institutes and Biotechnology Companies B**

**110095 VS - Modern aspects of biochemistry and analytics of carbohydrates**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	VS	N.N.	N.N.	Block	N.N.	N.N.	Dr. Stefanie Barbirz, apl. Prof. Dr. Jörg Fettke

Block course planned from 17.02.2025-28.02.2025. Information seminar in October 2024

**Kommentar**

Carbohydrates as part of glycan structures occur in all domains of life. Due to their ubiquitous role in cell-surface based signaling and information exchange a variety of glycan-based research fields has emerged during the last two decades. Especially developments in molecular biology and modern analytical methods have increased our knowledge about the ubiquitous role of carbohydrates in animals, plants, and bacteria.

The course will enable participants to develop an interdisciplinary perspective on the field of glycobiology. For this, in the beginning, a carbohydrate structure-based understanding of glycan biochemistry will be developed. This covers qualitative and quantitative carbohydrate analytics as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins.

Aim of this course is an insight into the interdisciplinary field of glycobiology. It will present an actual survey of the biochemistry of sugar building blocks, oligo- and polysaccharides in pro- and eukaryotic systems. Moreover, qualitative and quantitative carbohydrate analytics will be covered as well as the fundamental biophysical principles underpinning interactions of carbohydrates with proteins. Subject areas: Fundamentals on glycoconjugates. Structural and functional principles of the glycan conformational space. N- and O-linked glycosylation. Glycan analysis. Lectins and carbohydrate binding modules. Physicochemical principles of protein-carbohydrate interactions. Glycan arrays. Microbial glycobiology and pathogenesis.

**Leistungen in Bezug auf das Modul**

PNL 547112 - Seminar (unbenotet)

**110556 V - Current Research in Biochemistry and Molecular Biology in Local Research Institutes and Biotechnology Companies B Lecture**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.

**Leistungen in Bezug auf das Modul**

SL 547111 - Vorlesung (unbenotet)

**110557 S - Current Research in Biochemistry and Molecular Biology in Local Research Institutes and Biotechnology Companies B Seminar**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.

**Leistungen in Bezug auf das Modul**

PNL 547112 - Seminar (unbenotet)

**BIO-B-WM14 - Biochemistry and Molecular Biology as Reflected in other Sciences A** **110555 VU - Biochemistry and Molecular Biology as Reflected in other Sciences A**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.

**Leistungen in Bezug auf das Modul**

PNL 547211 - Vorlesung und Übung (unbenotet)

**BIO-B-WM15 - Biochemistry and Molecular Biology as Reflected in other Sciences B** **110382 DF - Introduction to databases and practical programming**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	08:15 - 09:15	wöch.	2.70.0.01	18.10.2024	Dr. Detlef Groth
1	SU	Fr	09:45 - 11:45	wöch.	2.70.0.01	18.10.2024	Dr. Detlef Groth

**Kommentar**

Dear students,  
for those students which does not yet have the Moodle course link, here it is:  
<https://moodle2.uni-potsdam.de/course/view.php?id=39233>

The course key is:  
Golm2324X

There will be a parallel Zoom session mainly for students not yet in Germany or in case you are not fit. Here is the Zoom link:  
<https://uni-potsdam.zoom.us/j/94438873701> (Password: 21955051) Fri 08:15-11:45  
Detlef Groth

**Leistungen in Bezug auf das Modul**

PNL 547311 - Vorlesung und Übung (unbenotet)

 **110559 VU - Biochemistry and Molecular Biology as Reflected in other Sciences B**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.

**Leistungen in Bezug auf das Modul**

PNL 547311 - Vorlesung und Übung (unbenotet)

 **111120 V - Foundations of pharmacology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mi	12:15 - 13:45	wöch.	DIfE.FLH	16.10.2024	Prof. Dr. André Kleinridders, Prof. Dr. Aswin Mangerich
1	V	N.N.	N.N.	wöch.	N.N.	N.N.	Prof. Dr. André Kleinridders, Prof. Dr. Aswin Mangerich

**Leistungen in Bezug auf das Modul**

PNL 547311 - Vorlesung und Übung (unbenotet)

 **111127 V - Organ toxicology, pathological anatomy and histopathology**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Do	10:00 - 11:30	wöch.	DIfE.FLH	17.10.2024	Dr. rer. nat. Franziska Ebert
1	V	Do	12:15 - 13:45	wöch.	DIfE.FLH	17.10.2024	Dr. rer. nat. Franziska Ebert

1	V	N.N.	N.N.	wöch.	N.N.	N.N.	Dr. rer. nat. Franziska Ebert, Dr. Katherina Siewert
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**Leistungen in Bezug auf das Modul**

PNL 547311 - Vorlesung und Übung (unbenotet)

**111128 V - Physiology and pathophysiology of nutrition**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Fr	10:00 - 11:30	wöch.	DIfE.FLH	18.10.2024	Prof. Dr. André Kleinridders, Prof. Dr. Tim Schulz
1	V	N.N.	N.N.	Einzel	N.N.	N.N.	Prof. Dr. André Kleinridders, Prof. Dr. Tim Schulz

**Leistungen in Bezug auf das Modul**

PNL 547311 - Vorlesung und Übung (unbenotet)

**111130 PR - Microscopy and Histopathology - lab course**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	PR	N.N.	09:15 - 17:00	Block	N.N.	13.01.2025	Prof. Dr. Claudia Matthäus
1	PR	N.N.	N.N.	Einzel	N.N.	N.N.	Prof. Dr. Claudia Matthäus
1	PR	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Claudia Matthäus

**Leistungen in Bezug auf das Modul**

PNL 547311 - Vorlesung und Übung (unbenotet)

**111415 VU - Transfer and Innovation Management**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	14:00 - 16:00	wöch.	N.N.	14.10.2024	Prof. Dr. Hans-Hennig von Grünberg
Raum 3.06.H08							
1	UT	Mo	16:00 - 18:00	wöch.	N.N.	14.10.2024	Prof. Dr. Hans-Hennig von Grünberg
Raum 3.06.H08							

**Kommentar**

The courses take place on **Monday 14:00-16:00 (lecture)** and **Monday 16:00-18:00 (seminar/exercise)** on the **Griebnitzsee campus** . Room: 3.06.H08, Hauptgebäude auf dem Campus Griebnitzsee: START: 21. Oktober

\*\*\*

Die Veranstaltungen finden **Montag 14:00-16:00 Uhr (Vorlesung)** und **Montag 16:00-18:00 Uhr (Seminar/Übung)** auf dem **Campus Griebnitzsee** statt. Der Raum 3.06.H08, Hauptgebäude auf dem Campus Griebnitzsee: START: 21. Oktober

### **Leistungsnachweis**

The examination requirement consists of a transfer concept for the demonstrator object that you have been working with during the semester.

\*\*\*

Die Prüfungsanforderung besteht in einem Transferkonzept für dasjenige Demonstratorobjekt, mit dem Sie sich im Semester beschäftigt haben.

**Lerninhalte**

How do you get from ideas to products? How do research results from the academic world find their way into a company's product portfolio? How do innovations emerge and how do you manage them? So far, the modules "MMBBWL410: Innovationsmanagement" (Prof. Julia Brennecke) at the WISO Faculty and "Knowledge and Technology Transfer" at the Mat. Nat. Faculty have been held separately. With this joint module we now want to think and teach transfer and innovation together, because the underlying concepts are intimately related to each other. Innovations do not arise by themselves, but are often based on research results.

In order to provide as many practical references as possible, we base the accompanying coursework on concrete research projects from practice. These cases will refer to projects from the innoFSPEC-Transfer-Lab of the University Potsdam. Your task is to develop for these use cases a technology-related transfer concept. Drawing on models and theories discussed in the module as well as on relevant academic literature, your concept should take the technology to the market and raise it to TRL 8 or 9. To this end, identify and evaluate potential avenues for commercialization of your technology (for instance by engaging in market and competitor analysis).

The accompanying lecture will also include talks by guests that will provide vivid examples from their everyday life to explain how to move from the results of applied research to innovations with and for companies. For example, we will invite a patent attorney, employees of a young start-up company and project managers from the Potsdam institutes of the Fraunhofer Gesellschaft.

Week	Date	Type	Topic	Initials
0	14-Oct	Lecture	Kick-off session - Introduction to the course	JB/HHvG
		Tutorial	--	
1		Lecture	Introduction to innovation management	JB
		Tutorial	Tutorial 1: Orga, assignment, get to know each other	AH/RS
2		Lecture	Technology transfer: How to get from research to innovation	HHvG
		Tutorial	Tutorial 2: Team building and presentation of cases	AH/RS
3		Lecture	Transfer at work: product-readiness-level, customer interaction level, technology readiness level and from prototype to product	HHvG
		Tutorial	Tutorial 3: On the use of ChatGPT in this course	AH/RS
4	13-Nov	Guest lecture	Transfer everyday (Fraunhofer)	FH
		Tutorial	Tutorial 4: Identification of transfer challenges + research exercise	AH/RS
5	20-Nov	Lecture	Market and competitor analysis	JB
		Tutorial	Tutorial 5: Exercise (market research)	AH/RS
6	27-Nov	Lecture	Innovation strategies: Open innovation	JB
		Tutorial	Tutorial 6: Interview preparation	AH/RS
7	04-Dec	Guest lecture	Innovation Selection strategies – (PT: Sascha Gohlke + Hertin & Partner)	HHvG
		Tutorial	Tutorial 7: IP	AH/RS

Abkürzungen entnehmen Sie bitte Seite 8

**Leistungen in Bezug auf das Modul**

PNL 547311 - Vorlesung und Übung (unbenotet)

**BIO-B-WM16 - Biochemistry and Molecular Biology in Practice A**

**110554 VU - Biochemistry and Molecular Biology in Practice A**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.

**Leistungen in Bezug auf das Modul**

PNL 547411 - Vorlesung und Übung (unbenotet)

**BIO-B-WM17 - Biochemistry and Molecular Biology in Practice B**

**110558 VU - Biochemistry and Molecular Biology in Practice B**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	B	N.N.	N.N.	Block	N.N.	N.N.	Prof. Dr. Salvatore Chiantia, N.N.

**Leistungen in Bezug auf das Modul**

PNL 547511 - Vorlesung und Übung (unbenotet)

**111415 VU - Transfer and Innovation Management**

Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	V	Mo	14:00 - 16:00	wöch.	N.N.	14.10.2024	Prof. Dr. Hans-Hennig von Grünberg
Raum 3.06.H08							
1	UT	Mo	16:00 - 18:00	wöch.	N.N.	14.10.2024	Prof. Dr. Hans-Hennig von Grünberg
Raum 3.06.H08							

**Kommentar**

The courses take place on **Monday 14:00-16:00 (lecture)** and **Monday 16:00-18:00 (seminar/exercise)** on the **Griebnitzsee campus**. Room: 3.06.H08, Hauptgebäude auf dem Campus Griebnitzsee: START: 21. Oktober

\*\*\*

Die Veranstaltungen finden **Montag 14:00-16:00 Uhr (Vorlesung)** und **Montag 16:00-18:00 Uhr (Seminar/Übung)** auf dem **Campus Griebnitzsee** statt. Der Raum 3.06.H08, Hauptgebäude auf dem Campus Griebnitzsee: START: 21. Oktober

**Leistungsnachweis**

The examination requirement consists of a transfer concept for the demonstrator object that you have been working with during the semester.

\*\*\*

Die Prüfungsanforderung besteht in einem Transferkonzept für dasjenige Demonstratorobjekt, mit Sie sich im Semester beschäftigt haben.

**Lerninhalte**

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		Tutorial	--	
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2		Lecture	Technology transfer: How to get from research to innovation	HHvG
		Tutorial	Tutorial 2: Team building and presentation of cases	AH/RS
3		Lecture	Transfer at work: product-readiness-level, customer interaction level, technology readiness level and from prototype to product	HHvG
		Tutorial	Tutorial 3: On the use of ChatGPT in this course	AH/RS
4	13-Nov	Guest lecture	Transfer everyday (Fraunhofer)	FH
		Tutorial	Tutorial 4: Identification of transfer challenges + research exercise	AH/RS
5	20-Nov	Lecture	Market and competitor analysis	JB
		Tutorial	Tutorial 5: Exercise (market research)	AH/RS
6	27-Nov	Lecture	Innovation strategies: Open innovation	JB
		Tutorial	Tutorial 6: Interview preparation	AH/RS
7	04-Dec	Guest lecture	Innovation Selection strategies – (PT: Sascha Gohlke + Hertin & Partner)	HHvG
		Tutorial	Tutorial 7: IP	AH/RS

Abkürzungen entnehmen Sie bitte Seite 8

**Leistungen in Bezug auf das Modul**

PNL 547511 - Vorlesung und Übung (unbenotet)

## Fakultative Lehrveranstaltungen

109852 KL - Evolutionsbiologisches / Genetisches Kolloquium							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	KL	Mo	16:00 - 17:30	wöch.	2.25.B0.01	14.10.2024	Ralph Tiedemann, Michael Lenhard, Michael Hofreiter

110164 S - Doktorandenseminar							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	N.N.	N.N.	wöch.	N.N.	N.N.	Harald Seitz

**Kommentar**

Bei Interesse bitte per Mail melden:

PD Dr. Harald Seitz

Fraunhofer Institute for Cell Therapy and Immunology Branch Bioanalytics and Bioprocesses (IZI-BB) Biomarker Validation and Assay Development

Am Mühlenberg 13 14476 Potsdam-Golm

Tel.: 0331 58187-208; [harald.seitz@izi-bb.fraunhofer.de](mailto:harald.seitz@izi-bb.fraunhofer.de)

110170 FS - Aktuelle Forschungsprobleme der Molekularen Enzymologie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	FS	Do	12:15 - 13:45	wöch.	2.25.B2.01	17.10.2024	Silke Leimkühler

110448 FS - Aktuelle Forschungsprobleme der Elektronenmikroskopie							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	FS	Mo	09:00 - 11:00	wöch.	N.N. (AG)	14.10.2024	Petra Wendler
2.25 B2.02							

110540 FS - Plant Molecular Biology and Genomics							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	FS	N.N.	N.N.	wöch.	N.N.	N.N.	Bernd Müller-Röber

**Kommentar**

The seminar will run during the whole semester (every Monday).

We will announce the time and room for this seminar via Email in the beginning of the semester.

**Zielgruppe**


für Bachelor- und Masterstudierende im Rahmen der Anfertigung einer Bachelor- oder Masterarbeit; Promovierende


110548 S - Current Topics in Biophysical Chemistry							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Di	14:15 - 15:45	wöch.	2.25.B0.01	15.10.2024	Anja Thalhammer, Salvatore Chiantia



**Kurzkomentar**

Please contact Prof. Chiantia for more details about this seminar.

 <b>110654 S - Current Literature in Biotechnology and Synthetic Biology</b>							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	N.N.	N.N.	wöch.	N.N.	N.N.	Katja Arndt

 <b>110656 S - Modern Methods in Biotechnology and Synthetic Biology</b>							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	N.N.	N.N.	wöch.	N.N.	N.N.	Katja Arndt

 <b>110662 S - Neue Arbeiten zur Molekularen Bioanalytik</b>							
Gruppe	Art	Tag	Zeit	Rhythmus	Veranstaltungsort	1.Termin	Lehrkraft
1	S	Do	12:15 - 13:45	wöch.	2.25.B0.01	17.10.2024	Frank Bier

# Glossar

Die folgenden Begriffserklärungen zu Prüfungsleistung, Prüfungsnebenleistung und Studienleistung gelten im Bezug auf Lehrveranstaltungen für alle Ordnungen, die seit dem WiSe 2013/14 in Kraft getreten sind.

- Prüfungsleistung** Prüfungsleistungen sind benotete Leistungen innerhalb eines Moduls. Aus der Benotung der Prüfungsleistung(en) bildet sich die Modulnote, die in die Gesamtnote des Studiengangs eingeht. Handelt es sich um eine unbenotete Prüfungsleistung, so muss dieses ausdrücklich („unbenotet“) in der Modulbeschreibung der fachspezifischen Ordnung geregelt sein. Weitere Informationen, auch zu den Anmeldemöglichkeiten von Prüfungsleistungen, finden Sie unter anderem in der [Kommentierung der BaMa-O](#)
- Prüfungsnebenleistung** Prüfungsnebenleistungen sind für den Abschluss eines Moduls relevante Leistungen, die – soweit sie vorgesehen sind – in der Modulbeschreibung der fachspezifischen Ordnung beschrieben sind. Prüfungsnebenleistungen sind immer unbenotet und werden lediglich mit "bestanden" bzw. "nicht bestanden" bewertet. Die Modulbeschreibung regelt, ob die Prüfungsnebenleistung eine Teilnahmevoraussetzung für eine Modulprüfung oder eine Abschlussvoraussetzung für ein ganzes Modul ist. Als Teilnahmevoraussetzung für eine Modulprüfung muss die Prüfungsnebenleistung erfolgreich vor der Anmeldung bzw. Teilnahme an der Modulprüfung erbracht worden sein. Auch für Erbringung einer Prüfungsnebenleistung wird eine Anmeldung vorausgesetzt. Diese fällt immer mit der Belegung der Lehrveranstaltung zusammen, da Prüfungsnebenleistung im Rahmen einer Lehrveranstaltungen absolviert werden. Sieht also Ihre fachspezifische Ordnung Prüfungsnebenleistungen bei Lehrveranstaltungen vor, sind diese Lehrveranstaltungen zwingend zu belegen, um die Prüfungsnebenleistung absolvieren zu können.
- Studienleistung** Als Studienleistung werden Leistungen bezeichnet, die weder Prüfungsleistungen noch Prüfungsnebenleistungen sind.



Quelle: Karla Fritze

# Impressum

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## Umsatzsteueridentifikationsnummer

DE138408327

## Layout und Gestaltung

[jung-design.net](http://jung-design.net)

## Druck

14.9.2024

## Rechtsform und gesetzliche Vertretung

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## Inhaltliche Verantwortlichkeit i. S. v. § 5 TMG und § 55 Abs. 2 RStV

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