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Module MAT-BIO-G4-M-2

Genetics (for Mathematics Students) (M, 4.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
MAT-BIO-G4-M-2	<i>Genetics (for Mathematics Students)</i>	4.0 CP (120 h)

Basedata

CP, Effort	4.0 CP = 120 h
Position of the semester	1 Sem. in WiSe
Level	[2] Bachelor (Fundamentals)
Language	[DE] German
Module Manager	Lossen, Christoph, Dr. habil. (WMA DEPT: MAT) (/staff/24/)
Lecturers	Storchova, Zuzana, Prof. Dr. (PROF DEPT: BIO) (/staff/102/) Willmund, Felix, Jun. Prof. Dr. (PROF DEPT: BIO) (/staff/103/)
Area of study	[MAT-NF] Special Offers for Subsidiary Topics in Math Programmes
Reference course of study	[MAT-82.105-SG] B.Sc. Mathematics (/mhb/FB-MAT/cos-509/)
Lifecycle-State	[NORM] Active

Notice

This module is part of the module **[BIO-GM4-M-2]** (/mhb/modules/BIO-GM4-M-2/) *Grundmodul 4: Genetik.*

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
3V	BIO-GEN-01-K-2 (/mhb/courses/BIO-GEN-01-K-2/)	P	-	PL1	4.0	WiSe

- About **[BIO-GEN-01-K-2]**: Title: "Genetics"; Presence-Time: 42 h; Self-Study: 78 h

Examination achievement PL1

- Form of examination: **written exam (Klausur) (60-90 Min.)**
- Examination Frequency: each winter semester

Evaluation of grades

The grade of the module examination is also the module grade.

Contents

From [BIO-GEN-01-K-2] Genetics (/mhb/courses/BIO-GEN-01-K-2/):

- Einführung in die Genetik;
- Mendel'sche Genetik und ihre Weiterentwicklung;
- DNA als Träger der genetischen Information, Genomstruktur;
- Genetische Kartierung;
- Geschlechtsbestimmung und Geschlechtschromosomen;
- Chromosomen und Chromatin;
- Epigenetik;
- Replikation und Rekombination von DNA;
- Mutagenese und DNA-Reparatur;
- Mitose, Meiose; Kontrollpunkte (Checkpoints) und Zellzyklus;
- Genregulation und -expression in Pro- und Eukaryonten;
- Modellsysteme der Genetik;
- Genomik, Transkriptomik, Proteomik; Bioinformatics;
- Genetik in der Medizin;
- Methoden der Gentechnologie;
- Ethische Probleme der Biotechnologie und moderne Genetik;
- Evolutionsgenetik; Populationsgenetik.

Competencies / intended learning achievements

Upon successful completion of the module, the students will be able to understand and describe the classical and molecular fundamentals of genetics, the repair and replication mechanisms of DNA, and the processes of gene expression in pro- and eukaryotic cells.

Literature

From [BIO-GEN-01-K-2] Genetics (/mhb/courses/BIO-GEN-01-K-2/):

- Nordheim, Knippers: Molekulare Genetik;

Materials

Die PowerPoint-Folien der Vorlesung, Videos aufgezeichneter Vorlesungsmitschnitte und Angaben zur Vor- und Nachbereitung Vorlesung gibt es auf der Homepage der Abteilung „Molekulare Genetik“.

Requirements for attendance (informal)

None

Requirements for attendance (formal)

None

References to Module / Module Number [MAT-BIO-G4-M-2]

Course of Study	Section	Choice/Obligation
[MAT-82.105-SG] B.Sc. Mathematics (/mhb/FB-MAT/cos-509/)	Subsidiary Subject (Minor)	[P] Compulsory
