Georg-August-Universität
Göttingen

Modulverzeichnis

zu der Prüfungs- und Studienordnung für den gemeinsamen konsekutiven binationalen Master-Studiengang "Internationaler Naturschutz" (Amtliche Mitteilungen I Nr. 24/2013 S. 746, zuletzt geändert durch Amtliche Mitteilungen I Nr. 44/2020 S. 828)

Module

Übersicht nach Modulgruppen

I. Master-Studiengang "Internationaler Naturschutz"

At least 120 C must be successfully completed following the regulations below.

1. Fachstudium (Göttingen)

Following the regulations below, modules worth overall at least 30 C must be successfully completed.

a. Pflichtmodule

The following compulsory modules worth overall 18 C must be successfully completed:

b. Wahlpflichtmodule

At least two of the following modules worth overall at least 12 C must be successfully completed. Students can choose other modules if they request permission by the examination board; the student’s application can be rejected without giving reasons; the applying student possesses no legal claim to being granted permission.

2. Fachstudium (Canterbury)

At least three of the following elective compulsory modules worth overall at least 30 C must be successfully completed. With permission of the relevant authority in charge at Lincoln University, students may select and complete other modules as elective modules.

3. Praxis-Semester

The following module worth 30 C must be successfully completed:

4. Masterarbeit

The successful completion of the Master's thesis is worth overall 30 C.

5. Fachstudium in Göttingen für Studierende im Sommersemester

Students who begin their studies at Lincoln University, Canterbury, or students of the University Göttingen who complete their professional studies in Göttingen during the summer semester for practical reasons, must complete at least four of the following elective compulsory modules worth overall at least 30 C. For students from Lincoln University who complete their stay at the University Göttingen during the winter semester, the regulations given under No. 1 apply.

II. Ergänzende Hinweise

1. Modulprüfungen

Soweit in diesem Modulverzeichnis Modulbeschreibungen der Universität Göttingen in englischer Sprache veröffentlicht werden, gilt für die verwendeten Prüfungsformen nachfolgende Zuordnung:

written exam - Klausur

oral presentation - Präsentation

oral presentation with written outline - Präsentation mit schriftlicher Ausarbeitung

oral exam - mündliche Prüfung

term paper - Hausarbeit

practical exam - praktische Prüfung

internship report - Praktikumsbericht

2. Angebote der Lincoln University

Die Modulbeschreibungen zu den Modulen M.INC.*.* entsprechen dem Angebot der Lincoln University und dienen der Orientierung. Kurzfristige Änderungen sind gegebenenfalls nicht berücksichtigt; maßgeblich sind jeweils die aktuellen Angebotsbeschreibungen der Lincoln University; es gilt ausschließlich das Prüfungsrecht der Lincoln University.

Georg-August-Universität Göttingen **Module M.Agr.0009: Biological control and biodiversity**	6 C 6 WLH

Learning outcome, core skills: Gain an understanding of what biological control is and how it can be used effectivelyas part of an IPM system and how biodiversity contributes to control of pest populations and other ecosystem services.	**Workload:** Attendance time: 84 h Self-study time: 96 h

Course: Biological Control and Biodiversity (Lecture, Exercise, Seminar) *Contents*: • Theoretical foundations of biological control • Natural enemy behaviour and biological control success • Biodiversity and ecosystem services in agroecosystems • Practical examples of biological control projects • Plant-herbivore-predator-interactionsPrinciples of population dynamics • Biological weed control	6 WLH
Examination: Written exam (70%; 45 minutes) and presentation (30%; approx. 20 minutes) **Examination prerequisites:** regular attendance at seminar and exercise and presentation of a seminar talk **Examination requirements:** Basic knowledge of the mechanisms of biological control of herbivorous insects; methodological approaches based on case examples; role of biodiversity for ecosystem processes and the population dynamic of herbivorous insects, multitrophic interactions between plants, herbivorous insects and their natural enemies; biodiversity and services of ecosystems.	6 C

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. i. R. Dr. Stefan Vidal
Course frequency: each winter semester; Göttingen	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:**
Maximum number of students: 12	

Additional notes and regulations: Lecture based materials; details provided during lectures.

Georg-August-Universität Göttingen **Modul M.Agr.0022: Honigbienen und Wildbienen in der Agrarland-schaft** *English title: Honey bees and wild bees in the agricultural landscape*	6 C 4 SWS

Lernziele/Kompetenzen: Die Studierenden sollen die Biologie von Honigbienen und Wildbienen kennenleren, um die große Bedeutung dieser Bestäuber von Kultur- ind Wildpflanzen besser einschätzen und nutzen zu können. Die praktische Einführung in die Imkerei erlaubt einen ersten Einstieg in dieses traditionelle landwirtschaftliche Gebiet. Bienenartenkenntnisse und praktische Erfahrungen bei der Pollenanalyse und Anfertigung von Nisthilfen stellen wichtige methodische Grundlagen dar.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Honigbienen und Wildbienen in der Agrarlandschaft (Vorlesung, Übung) *Inhalte*: Einführung in die Lebensweise von Honigbienen und Wildbienen, Grundlagen und Techniken der Imkerei (Völkerführung, Trachtnutzung), Ressourcennutzung von Honigbienen und Wildbienen (Bienentänze, Blütenbesuch, Pollenanalyse), Taxonomie von Wildbienen, Krankheiten und Gegenspieler von Bienen, Wildbienen in unterschiedlichen Lebensräume.	4 SWS
Prüfung: Referat (ca. 20 Minuten, 50%) und Protokoll (max. 40 Seiten, 50%) **Prüfungsanforderungen:** Im Rahmen des Moduls Honigbienen und Wildbienen in der Agralandschaft werden Kentnisse der Biologie von Wild- und Honigbienen, Grundlagenwissen zur Imkerei und zur Bestäubung von Kultur- und Nutzpflanzen, methodische Grundkenntnisse zur Erfassung von Wild- und Honigbienen abgefragt. Referat: eigenständige Ausarbeitung zu einem Thema, 20 Minuten, Vortrag auf deutsch oder englisch; Protokoll: zusammenfassende Darstellung der einzelnen Kurstage, Umfang je nach Kurstag 1-5 Seiten, insgesamt 20-40 Seiten.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Catrin Westphal
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 20	

Georg-August-Universität Göttingen **Modul M.Agr.0047: Naturschutz interfakultativ I** *English title: Nature conservation I (interfaculty lectures)*	6 C 4 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
Die Studierenden sollen sich durch die interfakultative Naturschutzausbildung ein breites Wissen im Bereich Naturschutz aneignen und die Beiträge aus Agrarwissenschaften, Biologie, Forstwissenschaften und Geographie zu einem Gesamtbild zusammenführen. Dazu gehören die inhaltliche Integration unterschiedlicher Methoden und Ansätze und die kritische Bewertung des Beitrags verschiedener Disziplinen zu aktuellen Problemen des Globalen Wandels.	Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Naturschutz interfakultativ 1 (Praktikum, Seminar) *Inhalte*: Im Rahmen einer einheitlichen interfakultativen Naturschutzausbildung für die vier "grünen" Fakultäten (Agrar, Bio, Forst, Geo) werden insgesamt zwei Module (Naturschutz interfakultativ I und II) angeboten, die für ein entsprechendes Zertifikat (des Zentrums für Naturschutz) für Studierende aus allen vier Fakultäten gleichermaßen verbindlich sind. In diesem ersten Block geht es um die Wissenschaftlichen Grundlagen des Naturschutzes (Zentrum für Naturschutz), die Grundlagen der Agrarökologie (Abt. Agrarökologie) und die Landschaftsökologische Analyse und Bewertung (Geographisches Institut).	
Prüfung: Klausur (60 Minuten) **Prüfungsanforderungen:** Erarbeitung des in den Vorlesungen angebotenen breiten Basiswissens im Bereich Naturschutz. Vorbereitung und Nachbereitung der Vorlesung für die abschließende Klausur	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Teja Tscharntke
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 50	

Georg-August-Universität Göttingen **Modul M.Agr.0048: Naturschutz interfakultativ II** *English title: Nature Conservation II (interfaculty lectures)*	6 C 4 SWS

Lernziele/Kompetenzen: Die Studierenden sollen sich durch die interfakultative Naturschutzausbildung ein breites Wissen im Bereich Naturschutz aneignen und die Beiträge aus Agrarwissenschaften, Biologie, Forstwissenschaften und Geographie zu einem Gesamtbild zusammenführen. Dazu gehören die inhaltliche Integration unterschiedlicher Methoden und Ansätze und die kritische Bewertung des Beitrags verschiedener Disziplinen zu aktuellen Problemen des Globalen Wandels.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Naturschutz interfakultativ 2 (Praktikum, Seminar) *Inhalte*: Im Rahmen einer einheitlichen interfakultativen Naturschutzausbildung für die vier "grünen" Fakultäten (Agrar, Bio, Forst, Geo) werden insgesamt zwei Module (Naturschutz interfakultativ I und II) angeboten, die für ein entsprechendes Zertifikat (des Zentrums für Naturschutz) für Studierende aus allen vier Fakultäten gleichermaßen verbindlich sind. In diesem zweiten Block geht es um die : Landschaftsplanung, Schwerpunkte Forstbetrieb und Waldnutzung sowie Naturschutz und Waldökologie und Naturschutzpolitik, Schwerpunkt: Naturschutz und Waldökologie (alle aufgeführten Veranstaltungen durch das Institut für Forstpolitik, Forstgeschichte und Naturschutz).	
Prüfung: Klausur (60 Minuten) **Prüfungsanforderungen:** Erarbeitung des in den Vorlesungen angebotenen breiten Basiswissens im Bereich Naturschutz. Vorbereitung Nachbereitung der Vorlesungen für die abschließende Klausur	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Teja Tscharntke
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 50	

Georg-August-Universität Göttingen **Modul M.Agr.0052: Ökologie und Naturschutz** *English title: Ecology and nature conservation*	6 C 7 SWS

Lernziele/Kompetenzen: Die Studierenden sollen die Lebensraumtypen und Lebensgemeinschaften der Agrarlandschaften so kennenlernen, dass sie Bewertungen unter Naturschutzgesichtspunkten vornehmen können. Dazu gehört ein tiefes und interdisziplinäres Verständnis von Biodiversitätsmustern und ökologischen Prozessen, wie sie nur durch eine Integration von Ökologie, Umweltökonomie, Nutzpflanzen- und Nutztierwissenschaften erfolgen kann. Zudem werden statistische Fertigkeiten erworben, die für den Test komplexer Fragestellungen wichtig sind.	**Arbeitsaufwand:** Präsenzzeit: 93 Stunden Selbststudium: 87 Stunden

Lehrveranstaltung: Bewertung und Pflege von Lebensräumen (Vorlesung, Übung) *Inhalte*: Charakterisierung der Lebensräume der Agrarlandschaft, biologische Schädlingsbekämpfung und Räuber-Beute-Beziehungen, Biotopvernetzung und genetische Differenzierung isolierter Populationen, Versuchsplanung bei ökologischen Fragestellungen, Landschaftsplanung und Biotopbewertung	5 SWS
Prüfung: Präsentation, Referat oder Korreferat (Gewicht: 60%, Dauer: ca. 20 Minuten) und Hausarbeit (Gewicht: 40%, Umfang: max. 25 Seiten) **Prüfungsanforderungen:** Grundlegende Kenntnisse im Bereich der Bewertung und Pflage von Lebensräumen, ausführliches Protokoll (Hausarbeit) und Referat zu einem ausgewählten Lebensraum	3 C

Lehrveranstaltung: Landwirtschaft und Naturschutz (Seminar) *Inhalte*: Interdisziplinäre Perspektive auf Fragen der umweltfreundlichen Agrarproduktion, naturschutzgerechten Landschaftsplanung und des Ressourcenmanagements in multifunktionalen Agrarlandschaften.	2 SWS
Prüfung: Präsentation, Referat oder Korreferat (ca. 20 Minuten) **Prüfungsanforderungen:** Ausführliche Kenntnisse zur interdisziplinären Sichtweise auf Probleme im Spannungsfeld von Landwirtschaft und Naturschutz; Vorbereitung der Seminarsitzung, Erarbeitung eines Themas für ein Referat	3 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Teja Tscharntke
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**

Maximale Studierendenzahl: 25	

Georg-August-Universität Göttingen **Modul M.Agr.0058: Plant herbivore interactions** *English title: Plant herbivore interactions*	6 C 4 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
Knowledge of complex interactions between plants and herbivorous insects. Preparation and critical reflection of methods applied in current research findings covering the lecture topics by a seminar presentation.	Präsenzzeit: 60 Stunden Selbststudium: 120 Stunden

Lehrveranstaltung: Plant herbivore interactions (Vorlesung, Seminar) *Inhalte*: The modul deals with the interactions between plants and herbivorous insects. The diversiy of the organisms involved and the biocenoses are discussed. With regard to plants different adaptations to damage by insects are presented and the role of resistance mechanisms is outlined. The sensory organs of herbivorous insects to discriminate between different plant species and the role of volatile and secondary compounds produced by the plants are demonstrated. Multiple Interactions between plants, their herbivores, and natural enemies and application strategies in plant protection are discussed. The interactions between flowering plants and pollinators are outlined and the importance of seed predation will be exemplified. During the seminar part of the module students will present recent research findings which will complement the content of the lectures.	4 SWS
Prüfung: Klausur (Gewicht: 67%, Dauer: 45 Minuten) und Präsentation, Referat oder Korreferat (Gewicht: 33%, Dauer: ca. 20 Minuten) **Prüfungsvorleistungen:** Teilnahme an den Seminaren und Bearbeitung und Vorstellung eines Seminarbeitrages **Prüfungsanforderungen:** Profound knowledge of processes involved in plant selection by herbivorous insects; protection strategies evolved by plants; determinants of herbivorous communities on specific plants, multitrophic interactions between plants; herbivorous insects and their natural enemies; interactions between plants and their pollinators or seed predators.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. Michael Georg Rostás
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 20	

Georg-August-Universität Göttingen **Modul M.Agr.0061: Projektpraktikum Naturschutz in der Agrarlandschaft** *English title: Practical Course Nature Conservation in Agricultural Landscapes*	6 C 4 SWS

Lernziele/Kompetenzen: Die Studierenden sollen lernen, wie man sich selbständig eine innovative Fragestellung erarbeitet und wie ein Versuchsdesign ausschauen kann, das zur Beantwortung dieser Frage geeignet ist. Die Erfahrung mit selbständiger Anlage und Auswertung von Experimenten ist eine elementare Grundlage für wissenschaftliches Arbeiten, wie es letztlich bei der Masterarbeit gefordert ist. Zudem erlaubt die kritische Diskussion der Vorgehensweise, die Glaubwürdigkeit von wissenschaftlichen Arbeiten und Gutachten besser zu beurteilen.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Projektpraktikum Naturschutz in der Agrarlandschaft (Praktikum, Seminar) *Inhalte*: Selbständige Erarbeitung von Problemstellungen und Versuchen zur Fragen des Naturschutzes in der Agrarlandschaft. Die Studierenden erarbeiten eine innovative Fragestellung und ein zum Testen der jeweiligen Hypothesen geeignetes Versuchsdesign. Der Versuchsplan wird im Plenum vorgestellt und diskutiert. Die Feld- und Laborexperimente finden danach weitgehend selbständig statt. Die statistische Auswertung der Ergebnisse wird Teil eines Protokolls, das wie eine wissenschaftliche Arbeit aufgebaut sein soll (Einleitung, Methoden, Ergebisse, Diskussion). Bei allen Schritten findet eine intensive Betreuung und Anleitung statt.	4 SWS
Prüfung: Hausarbeit (max. 20 Seiten, 70%) und Präsentation, Referat oder Korreferat (ca. 12 Minuten, 30%) **Prüfungsanforderungen:** Erfahrung mit selbständiger Anlage und Auswertung von Experimenten. Kenntnisse zur statistischen Auswertung der gewonnen Ergebnisse. Referat: In einem 12-minutigen Referat werden die Ergebnisse der Felduntersuchungen präsentiert und kritisch diskutiert. Dies beinhaltet neben einer kurzen Einleitung die Darstellung der Untersuchungshypothesen, Feld-/Labormethoden, statistische Datenauswertung und eine Diskussion der Ergebnisse unter Einbeziehung von Sekundärliteratur, wie z.B. wissenschaftlichen Fachpublikationen (30% der Modulnote). Hausarbeit: In einer schriftlichen Hausarbeit (Umfang max. 20 Seiten) werden die Versuche im Stil einer wissenschaftlichen Veröffentlichung dargelegt. Die Hausarbeit wird hierbei gegliedert in: Zusammenfassung, Einleitung, Hypothesen, Methoden, Resultate, Diskussion und Quellen. Neben formalen Aspekten (z.B. Darstellung der Ergebnisse, Orthografie, korrekte Zitierweise) steht insbesondere die Diskussion der eigenen Ergebnisse unter Berücksichtigung der wissenschaftlichen Fachliteratur im Fokus der Prüfungsanforderungen (70% der Modulnote).	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine

Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Teja Tscharntke
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 20	

Georg-August-Universität Göttingen **Modul M.Agr.0089: Ökologisches Seminar** *English title: Ecology seminar*	3 C 2 SWS

Lernziele/Kompetenzen: Die Studierenden sollen sich mit der aktuellen Literatur befassen und lernen, welche Stärken und Schwächen die vorgestellten Arbeiten haben. Zudem sollen sie mit eigenen Vorträgen und in der Diskussion lernen, ihre Ansichten argumentativ zu vertreten und sich mit kontroversen Haltungen auseinanderzusetzen. Darüber soll ein tieferes Verständnis und eine größere inhaltliche Sicherheit bei aktuellen ökologischen Themen erreicht werden.	**Arbeitsaufwand:** Präsenzzeit: 28 Stunden Selbststudium: 62 Stunden

Lehrveranstaltung: Ökologisches Seminar (Seminar) *Inhalte*: In diesem Seminar werden aktuell Themen der Ökologie und Biodiversitätsforschung durch die TeilnehmerInnen vorgestellt und diskutiert. Dazu gehören zum einen kontroverse Diskussionen in der aktuellen Literatur zu Fragen wie dem Zusammenhabng von Biodiversität und Ökosystemfunktionen in Agrarsystemen oder zur Bedeutung des Globalen Wandels für Ökosysteme. Zum anderen werden anhand aktueller Forschungsarbeiten Problem des Versuchsdesigns und der statistischen Auswertung diskutiert. In regelmässigen Abständen gibt es auch Vorträge von eingeladenen Gästen aus dem In- und Ausland.	2 SWS
Prüfung: Hausarbeit (max. 15 Seiten) **Prüfungsanforderungen:** Erarbeitung von Hintergrundwissen zu verschieden Themen der Ökologie und der Biodiversitätsforschung,die Fähigkeit, eigene Ansichten argumentativ zu vertreten und Hintergrundwissen zu Versuchsdesign und statistischer Auswertung zu erlangen. Hausarbeit: Teilnahme an mind. 10 Seminarterminen und Protokoll von mind. 5 Seminarthemen von max. 15 Seiten Gesamtlänge.	3 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Teja Tscharntke
Angebotshäufigkeit: jedes Semester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 30	

Georg-August-Universität Göttingen **Modul M.Bio-NF.401: International Nature Conservation at the Federal Agency for Nature Conservation, Vilm** *English title: International Nature Conservation at the Federal Agency for Nature Conservation, Vilm*	3 C 2 SWS

Lernziele/Kompetenzen: The course will contribute to qualify Biodiversity and Nature Conservation Master-degree students for future work in international conservation organizations and for scientific tasks related to international nature conservation. With the four-day-course at the Isle of Vilm, the students will be given the opportunity • To broaden their knowledge about international nature conservation issues • To receive first-hand information on international conventions and discussions from those actively involved, and • To create a platform for networking and information exchange. It will cover the following topics: • Global conventions on Biodiversity • Climate change and conservation • Protected areas and the UNESCO World Heritage Convention • Issues and approaches of sustainable use incl. certification • Financing conservation • Conservation in the marine Environment The course will be a combination of lectures, interactive discussions and working groups.	**Arbeitsaufwand:** Präsenzzeit: 28 Stunden Selbststudium: 62 Stunden

Lehrveranstaltung: International Nature Conservation at the Federal Agency for Nature Conservation, Vilm (Blockveranstaltung) *Inhalte*: 4-day seminar	2 SWS
Prüfung: Präsentation (ca. 30 Minuten)	3 C

Prüfungsanforderungen: Research on the required topic	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. rer. nat. Ulrich Brose
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 25	

Georg-August-Universität Göttingen **Modul M.Biodiv.401: Biodiversität** *English title: Biodiversity*	12 C 16 SWS

Lernziele/Kompetenzen: **Learning outcomes** • Comprehensive knowledge of indigenous fauna and flora; • Knowledge of living conditions of indigenous animal and plant species in their specific ecosystems and their endangering potential; • Practice in species and ecosystems knowledge by participation in one-day botanical and zoological field trips in the landscape near Göttingen; • Knowledge of non-Central European fauna and flora of natural and cultural landscapes by participation in an extended (two weeks) botanical or zoological field trip. **Core skills** • Identification and knowledge of animal and plant species; • Knowledge of ecology and biology of animal and plant species; • Scientific ecological understanding of biodiversity and its multiple functioning in ecosystems, particularly Central European ecosystems. • Evaluation of the endangering potential of endangered animal and plant species.	**Arbeitsaufwand:** Präsenzzeit: 224 Stunden Selbststudium: 136 Stunden

Lehrveranstaltung: M.Biodiv.401.1 - M.Biodiv.401.7 One practice course *Inhalte*: One practice course of the following: • Practice in pollen analysis (401.1) or • Practice in identification of grasses and grass-like plants (401.2) or • Practice in identification of hymenoptera (401.3) or • Biology and ecology of diptera (401.4) or • Biodiversity and ecology of indigenous avifauna (401.5) or • Identification of bryophytes and lichens (401.6) or • Equivalent practice in identification and biodiversity of other groups of plant and animal species (401.7)	5 SWS
Lehrveranstaltung: M.Biodiv.401.8: Four one-day field trips for advanced students (two botanical and two zoological) *Angebotshäufigkeit:* jedes Sommersemester	4 SWS

Lehrveranstaltung: M.Biodiv.401.9: One extended botanical or zoological field trip for advanced students	7 SWS
Prüfung: Protokoll (max. 12 Seiten) oder Seminarvortrag (ca. 20 Minuten) zu M.Biodiv.401.7, unbenotet **Prüfungsvorleistungen:** erfolgreiches Absolvieren einer Bestimmungsübung und der eintägigen Exkursionen	12 C

Prüfungsanforderungen: • Profound knowledge of indigenous fauna and flora; • Expertise in identification of animal and plant species; • Knowledge of important ecological groups of animals and plants in Central European ecosystems; • Knowledge of the endangering potential of plant and animal species.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** PD Dr. Dirk Gansert
Angebotshäufigkeit: jedes WiSe: 401.1; 401.3; 401.6 jedes SoSe: 401.2; 401.4; 401.5; 401.8	**Dauer:** 2 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 15	

Georg-August-Universität Göttingen **Modul M.Biodiv.402: Pflanzenökologie & Ökosystemforschung** *English title: Plant ecology and ecosystems research*	6 C 4 SWS

Lernziele/Kompetenzen: The students • acquire an overview of the most important habitats all over the world and their respective vegetation and ecology • acquire a global overview of the anthropogenous causes of ecosystem burdens • acquire profound knowledge of the habitats of exemplarily selected climate zones and their ecology • know basic correlations between climate, soil and vegetation on different continents • acquire profound knowledge on how the global change of land use and the global warming influence vegetation and ecosystem processes • are able to analyze topics of ecosystematic and global aspects of plant ecology independently and prepare a presentation of their findings	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: M.Biodiv.402.1: Vegetation & ecology of the world (Vorlesung) or	2 SWS
Lehrveranstaltung: M.Biodiv.402.8: Ecosystems research, carbon balance & global warming (Vorlesung)	
Lehrveranstaltung: M.Biodiv.402.4: Current topics in plant ecology and nature conservation (Seminar) or	2 SWS
Lehrveranstaltung: M.Biodiv.402.6: Aut- and synecology of plants: the tropics (Seminar) or	
Lehrveranstaltung: M.Biodiv.402.11: Vegetation and ecology of Eurasian and North American steppes (Seminar)	
Prüfung: Klausur (90 Minuten) **Prüfungsvorleistungen:** Seminarvortrag (max. 25 Minuten) **Prüfungsanforderungen:** Knowledge of ecosystematic and global aspects of plant ecology and possible impacts of the climate change on terrestrial ecosystems. Knowledge of the change in land use and its impacts on the structure of species in the different vegetation areas of the earth.	6 C

Prüfungsanforderungen: Understanding of the ecosystem and global perspectives of plant ecology and of consequences of climate change on ecosystems. Comprehension of the effects of land use change on species composition in the different vegetation zones of the earth.	

Zugangsvoraussetzungen:	**Empfohlene Vorkenntnisse:**

	keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Christoph Leuschner
Angebotshäufigkeit: jedes Wintersemester; 402.11 nur jedes SoSe	**Dauer:** 1 - 2 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Georg-August-Universität Göttingen **Modul M.Biodiv.403: Vegetationsökologie und Vegetationsgeschichte** *English title: Vegetation ecology and vegetation history*	6 C 4 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
The students acquire knowledge and a profound understanding of temporal and spatial vegetation patterns; one focus lies on biomes, climate zones and other large-scale vegetation areas, another focus lies on biological and geobotanical principles and basics on different scale levels and in different natural environments. Perception and knowledge in basic and applied fields of advanced vegetation ecology, vegetation history, sociology and chorology of plants, conception and reception of scientific papers; presentation skills.	Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: M.Biodiv.402.1 Vegetation and ecology of the world (Vorlesung) or	
Lehrveranstaltung: M.Biodiv.403.1 General and plant sociological vegetation ecology (Vorlesung) or	2 SWS
Lehrveranstaltung: M.Biodiv.403.2 General vegetation history of the world (Vorlesung)	
Lehrveranstaltung: M.Biodiv.403.3 Applied vegetation ecology in the Mediterranean area (Seminar) or	2 SWS
Lehrveranstaltung: M.Biodiv.403.4 Modern issues of vegetation science in agricultural landscapes (Seminar) or	
Lehrveranstaltung: M.Biodiv.402.11 Vegetation and ecology of Eurasian and North American steppes (Seminar)	

Prüfung: Seminarvortrag (ca. 30 Min.) **Prüfungsanforderungen:** Knowledge of temporal and spatial vegetation patterns with focus on biomes, climate zones and other large-scale vegetation areas.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. Erwin Bergmeier Prof. Dr. Hermann Behling
Angebotshäufigkeit: jedes WiSe: 402.1; 403.1; 403.3; jedes SoSe: 402.11; 403.2	**Dauer:** 1 - 2 Semester

Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 16	

Georg-August-Universität Göttingen **Modul M.Biodiv.404: Tierökologie** *English title: Animal ecology*	6 C 4 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
The lecture presents principles and theories of ecology and introduces current topics of ecological research. Topics include population ecology, interactions in animal communities, food webs, biodiversity and ecological theories. The seminar covers current topics of ecological and evolutionary research. In the seminar the students acquire advanced knowledge of methods and strategies to analyze ecological communities. Knowledge of ecological theories and modelling. Principles of animal populations and food webs. Experimental and statistical methods for the analysis of animal communities. Knowledge of current topics of animal ecological and evolutionary biology research.	Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Animal ecology (Vorlesung)	2 SWS
Lehrveranstaltung: Topics of animal ecology and evolution (Seminar)	2 SWS

Prüfung: Klausur (90 Minuten) **Prüfungsvorleistungen:** Seminarvortrag (ca. 20 Minuten) **Prüfungsanforderungen:** Knowledge of ecological principles and theories, population models. Functional responses, analysis and modelling of biotic interactions and food webs. Biodiversity and ecosystem functioning.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Stefan Scheu
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Georg-August-Universität Göttingen **Modul M.Biodiv.406: Regionale Vegetationsökologie und Phytodiversität** *English title: Regional vegetation ecology and phytodiversity*	6 C 4 SWS

Lernziele/Kompetenzen: The students acquire an improved level of understanding plant diversity and vegetation on various spatial and temporal scales. Subject-specific literature and other basic and applied data sources are evaluated. The academic and administrative background of the EU Habitats Directive is highlighted as well as its implementation in biodiversity conservation and its achievements in the conservation of natural and semi-natural habitats on national and international level. The students review and present current research in vegetation ecology and how this information is handled in academic journals. They learn problem-oriented perception of concepts such as ecoregions and biomes, land use and nature conservation from a vegetation ecologist's perspective. They acquire skills in understanding, evaluating, appreciating and questioning scientific publications, receive performance instructions, gain insight in the conception and scientific capacity of biodiversity-related instruments in conservation administration and policy.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: M.Biodiv.406-1: Habitat types of the EU Habitats Directive (Vorlesung)	2 SWS
Lehrveranstaltung: M.Biodiv.403-3: Applied vegetation ecology of the Mediterranean (Seminar) or	2 SWS
Lehrveranstaltung: M.Biodiv.403-4 Modern issues of vegetation science in agricultural landscapes (Seminar) or	
Lehrveranstaltung: M.Biodiv.402-11: Vegetation and ecology of Eurasian and North American steppes (Seminar)	

Prüfung: Vortrag (ca. 30 Minuten) **Prüfungsanforderungen:** Proven knowledge of plant diversity and vegetation on various spatial and temporal scales; in-depth skills in applied geobotany and/or biogeography; profound knowledge in present-day strategies for the conservatin of habitat types and ecoregions on national and international level.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Erwin Bergmeier
Angebotshäufigkeit: jedes Wintersemester; 402-11 nur jedes SoSe	**Dauer:** 1 - 2 Semester

Wiederholbarkeit:	**Empfohlenes Fachsemester:**
zweimalig	
Maximale Studierendenzahl:	
16	

Bemerkungen:
The seminars in modules M.Biodiv.403 and M.Biodiv.406 are mutually exclusive.

Georg-August-Universität Göttingen **Modul M.Biodiv.408: Primatenökologie** *English title: Primate ecology*	6 C 8 SWS

Lernziele/Kompetenzen: Learning outcome: Get to know ecological principles and methods with non-human primates as model organisms. Core skills: Design and realization of ecological studies; critical inspection and evaluation of relevant literature; competent handling of damageable equipment (telemetry).	**Arbeitsaufwand:** Präsenzzeit: 112 Stunden Selbststudium: 68 Stunden

Lehrveranstaltung: Primate ecology (Vorlesung)	2 SWS
Lehrveranstaltung: Primate ecology (Übung)	6 SWS

Prüfung: Klausur (90 Minuten) **Prüfungsvorleistungen:** Seminarvortrag (ca. 20 min) **Prüfungsanforderungen:** Ecological knowledge, especially concerning primates and their interactions with the environment; knowledge of ecological studies on primates; scientific presentation of results.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Eckhard W. Heymann
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 12	

Georg-August-Universität Göttingen **Modul M.Biodiv.412: Naturschutzbiologie** *English title: Nature conservation biology*	6 C 4 SWS

Lernziele/Kompetenzen: The module imparts the basic knowledge necessary to complete the advanced modules in Nature Conservation. Detailed knowledge is provided on the development of Conservation Biology as a scientific field (M.Biodiv.412-2), on current questions in Nature Conservation (M.Biodiv.412-1, 412-3) and on Conservation Politics (M.Forst.1212.2, M.Forst.1512). Professional skills at the interface between conservation research, the development of conservation strategies and their realization under socio-political conditions. Knowledge of political decision-making under scientific and economical operation guidelines.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: One lecture from the following options: • M.Biodiv.412-1 International nature conservation *or* • M.Biodiv.412-2 The song of the Dodo - Origins of conservation biology *or* • M.Forst.1212.2 Analysis of policy for nature conservation	2 SWS
Lehrveranstaltung: One seminar from the following options: • M.Biodiv.412-3 Botanical nature conservation and environmental protection *or* • M.Forst.1512 Global environmental and forest policy	2 SWS

Prüfung: Klausur (90 Minuten) **Prüfungsvorleistungen:** Seminarvortrag (max. 30 Min.) **Prüfungsanforderungen:** Knowledge from the scientific fields which form the basis of Conservation Biology, its history, Conservation Politics on a national and international scale and the political dimensions of Nature Conservation.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. rer. nat. Matthias Waltert
Angebotshäufigkeit: jedes Wintersemester; 412-3 jedes SoSe	**Dauer:** 1 - 2 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Georg-August-Universität Göttingen **Modul M.Biodiv.424: Pflanzenökologie: Feldstudien zur Pflanzen-ökologie, Phytodiversität und Ökosystemforschung** *English title: Plant ecology: Field studies of plant ecology, phytodiversity, and ecosystems research*	6 C 8 SWS

Lernziele/Kompetenzen: The students • get to know habitats of selected regions in Germany, Europe or in non-European countries (e.g. the tropics of South America, Central Asian steppes) • have a profound knowledge of selected habitats which you do not find in the Göttingen neighbourhood (e.g. tropical rain forest, steppes, salt marshes, dunes, high mountains) • know the basic interrelationships between climate, soil, land use, vegetation and ecosystem processes in the examined habitats given as examples • know characteristic plant species of the examined region • are able to analyse and judge conflicts aimed at conserving the selected habitats • gain insights into the practice of ecological field work • are able to acquire knowledge about ecological interrelationships out of the literature and to present it orally according to scientific standards • are able to present the results of ecological field work according to scientific standards in writing	**Arbeitsaufwand:** Präsenzzeit: 112 Stunden Selbststudium: 68 Stunden

Lehrveranstaltung: International field studies (Übung) Destinations of excursions vary irregularly.	6 SWS
Lehrveranstaltung: Ecosystems and field work (Seminar)	2 SWS

Prüfung: Protokoll (max. 10 Seiten) **Prüfungsvorleistungen:** Vortrag: Selbständige Ausarbeitung zu einem am Exkursionsziel orientierten Thema aus dem Bereich der Pflanzenökologie und Ökosystemforschung (max. 25 Minuten) **Prüfungsanforderungen:** Knowledge about several ecosystems in Germany and abroad, including the tropics, based on practical experiences on-site; knowledge about the biodiversity in these ecosystems and its continuity or endangering, respectively, by anthropogenic influences; knowledge about Sustainable management and the effects of anthropogenic overexploitation on ecosystems.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. Christoph Leuschner
Angebotshäufigkeit: unregelmäßig im Sommersemester (Ankündigung im vorausgehenden Wintersemester)	**Dauer:** 1 Semester

Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 12	

Georg-August-Universität Göttingen **Modul M.Biodiv.443: Tierökologie: Feldstudien zur Tierökologie & zoologischen Biodiversität** *English title: Animal ecology: Field studies in animal ecology and zoological biodiversity*	6 C 8 SWS

Lernziele/Kompetenzen: Die Studierenden erlernen die vertiefte Analyse von Tiergemeinschaften des Mediterrangebiets. Die untersuchten Gemeinschaften werden taxonomisch analysiert und die erhobenen Daten über experimentell-statistische Methoden und Ordinationsverfahren ausgewertet. Es werden vorhandene Kenntnisse der Diversität der Tiere und Pflanzen verschiedener Ökosysteme vertieft. Hierzu werden in terrestrischen oder marinen Lebensräumen des Mediterrangebiets Gradienten beprobt (z.B. Höhengradienten, Lichtgradienten, Temperaturgradienten, Störungsgradienten). Die dort vorkommenden Tiere werden gezählt, bestimmt und trophischen Gruppen zugeordnet. Weiterhin werden mögliche Umweltfaktoren untersucht, die für die Zusammensetzung der jeweiligen Tiergemeinschaften verantwortlich sein könnten. Die Analyse der Ergebnisse erfolgt mit den Programmen SAS, Statistica und Canoco. Grundkenntnisse in Statistik und Kenntnisse der organismischen Diversität mariner und terrestrischer Ökosysteme sind erwünscht. Die Studierenden erlernen Fachkompetenzen zu terrestrischen und marinen Tiergemeinschaften mediterraner Gebiete.	**Arbeitsaufwand:** Präsenzzeit: 112 Stunden Selbststudium: 68 Stunden

Lehrveranstaltung: Feldforschungen zur Tierökologie und zoolog. Biodiversität (Seminar)	2 SWS
Lehrveranstaltung: Feldstudien mediterraner Systeme (Übung)	6 SWS
Prüfung: Protokoll (max. 20 Seiten) **Prüfungsvorleistungen:** Seminarvortrag (ca. 20 Min.) **Prüfungsanforderungen:** Qualitative und quantitative Kenntnis terrestrischer und mariner Tiergemeinschaften des Mediterrangebietes; Kenntnis der Biodiversitätsgrade und Zuordnung zu trophischen Tiergruppen. Kenntnis des Einflusses von Umweltfaktoren auf diese Tiergemeinschaften.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Stefan Scheu
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 18	

Georg-August-Universität Göttingen **Modul M.Biodiv.450: Pflanzenökologie: Impact of global climate change on plant communities and their functional traits** *English title: Plant ecology: Impact of global climate change on plant communities and their functional traits*	6 C 8 SWS

Lernziele/Kompetenzen: The students • have profound knowledge of interactions between plants • have an overview of completion research • understand the concept of “functional traits” of species and communities • are able to analyze the reaction of plants to the main factors of global climate change experimentally • have profound knowledge of the design and statistical (variance analytical) analysis of ecological experiments • are able to present the results of ecological experiments in accordance with scientific standards in written and oral form.	**Arbeitsaufwand:** Präsenzzeit: 112 Stunden Selbststudium: 68 Stunden

Lehrveranstaltung: Impact of global climate change on plant communities (Vorlesung)	2 SWS
Lehrveranstaltung: Impact of global climate change on plant communities (Übung)	6 SWS
Prüfung: Protokoll (max. 10 Seiten) **Prüfungsvorleistungen:** Vortrag (max. 25 Min.) **Prüfungsanforderungen:** Knowledge of plant interactions and of the concept of “functional traits”. Knowledge of experimental methods and statistical procedures in botanical (population) ecology. Knowledge of strategies for the adaption of plants to climate change.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Christoph Leuschner Dr. Ina Meier
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 12	

Georg-August-Universität Göttingen **Modul M.Biodiv.482: Naturschutzbiologie: Feldstudien zur Naturschutzbiologie** *English title: Nature conservation biology: Field studies in conservation biology*	6 C 8 SWS

Lernziele/Kompetenzen: This module offers students field work experience within the frame of an international excursion. The lectures entail a general introduction to the destination, basics on the ecology and conservation status of important conservation targets and discussions of management approaches in regard to conservation effectiveness. Region-specific issues will be elaborated by the participants and presented in a seminar. Exercises in the field particularly cover field identification and assessment methods for selected species and assemblages. During discussions with stakeholders, students particularly experience the role of conservation biologists within conservation in an international context.	**Arbeitsaufwand:** Präsenzzeit: 112 Stunden Selbststudium: 68 Stunden

Lehrveranstaltung: M.Biodiv.482-1 Field studies in conservation biology (Vorlesung)	1 SWS
Lehrveranstaltung: M.Biodiv.482-2 Field studies in conservation biology (Seminar)	7 SWS
Lehrveranstaltung: M.Biodiv.482-3 Field studies in conservation biology (Übung)	

Prüfung: Protokoll (max. 20 Seiten) **Prüfungsvorleistungen:** Seminarvortrag (ca. 20 Min.) **Prüfungsanforderungen:** Knowledge in ecology and conservation of conservation targets and their monitoring; Field work for status assessments and discussions of management effectiveness.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. rer. nat. Matthias Waltert
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 12	

Georg-August-Universität Göttingen **Modul M.Biodiv.483: Naturschutzbiologie: Bestandserfassung wildlebender Arten für den Naturschutz** *English title: Nature conservation biology: Assessment of wildlife species for nature conservation*	6 C 8 SWS

Lernziele/Kompetenzen: Monitoring populations of endangered species is an essential component of adaptive conservation management. With completion of this course students should be able to design surveys which allow accurate and reliable population estimations. In the course of the module the theoretical basis for quantitative assessments are imparted and practical experiences on design and realization of wildlife surveys are presented. In the tutorial part of the course population data are being analyzed and interpreted. An understanding of concepts such as effective strip width, cluster size, encounter rate and detection probability as well as the influence of these variables on population estimates and associated variance is being provided.	**Arbeitsaufwand:** Präsenzzeit: 112 Stunden Selbststudium: 68 Stunden

Lehrveranstaltung: Theoretical background of population assessment (Vorlesung)	2 SWS
Lehrveranstaltung: Analysis, interpretation and management of stand data (Übung)	6 SWS

Prüfung: Protokoll (max. 20 Seiten) **Prüfungsvorleistungen:** Vortrag (ca. 15 Min.) **Prüfungsanforderungen:** Basics of adaptive conservation management and knowledge of the realization of wildlife surveys. Basics on survey design and practice-oriented estimation of wildlife populations.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch, Deutsch	**Modulverantwortliche[r]:** Prof. Dr. rer. nat. Matthias Waltert
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 12	

Georg-August-Universität Göttingen **Modul M.Biodiv.488: Naturschutzbiologie: Ornithologie** *English title: Nature conservation biology: Ornithology*	6 C 8 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
The students acquire knowledge concerning the biology and biodiversity of indigenous bird species and their habitats. To these belongs knowledge of habitat conditions, feeding ecology, breeding biology, hibernation, population trends and causes of endangerment. The students learn the optical and acoustic identifications of bird species within the open country by use of selected ornithological methods: telemetry, mapping, analysis of the habitat use of individual species and generation of species profiles. The students acquire skills for the comparison of different landscape elements regarding their avifauna, for the analysis of collected data and for the modeling of the extinction risk of endangered populations. Core skills: knowledge of the biodiversity of the indigenous avifauna and its ecology as well as of field methods for its quantitative registration, statistical analysis and evaluation of the endangerment potential on species and population level.	Präsenzzeit: 112 Stunden Selbststudium: 68 Stunden

Lehrveranstaltung: Biology of selected bird species (Vorlesung)	2 SWS
Lehrveranstaltung: Identification of birds in the field and methods in ornithology (Übung)	6 SWS
Prüfung: Protokoll (max. 20 Seiten) **Prüfungsanforderungen:** Biodiversity of the indigenous avifauna as well as of field methods for its identification and evaluation of the endangerment potential on species and population level.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** Knowledge of the songs of the most common bird species.
Sprache: Englisch	**Modulverantwortliche[r]:** Dr. rer. nat. Eckhard Gottschalk
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 12	

Georg-August-Universität Göttingen **Module M.FES.111: Introduction to Ecological Modelling**	6 C 4 WLH

Learning outcome, core skills: Basic knowledge of classic and modern approaches for modelling dynamics of populations and communities. Skilled in analytical thinking, independent application of models for practical research questions, development of simple models, and critical assessment of the possibilities and limitations of different modeling approaches. Ability to develop an effective model concept.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Introduction to ecological modelling (Lecture, Exercise) *Contents*: Using examples from ecology in general and forest ecology in specific, we will cover the following modelling approaches and types: population growth (considering demographic and environmental noise, scramble and contest competition), metapopulation models, predator-prey models, forest growth models, patterns and dynamics of biodiversity, island biogeography, life tables, matrix models, individual-based models, and spatial models. We will also address how to develop a model concept. The course will consist of a mixture of lectures and hands-on work on the computer.	4 WLH
Examination: Term paper (max. 3 pages, 50%) and written examination (45 minutes, 50%)	6 C

Examination requirements: Term paper: Ability to develop an effective model concept. Written examination: Knowledge and understanding of essential characteristics of the modelling approaches covered in class. Ability to interpret model results. Knowledge of possibilities and limitations of the models.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Kerstin Wiegand
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: 20	

Georg-August-Universität Göttingen **Module M.FES.112: Biodiversity Measurement**	6 C 4 WLH

Learning outcome, core skills:	**Workload:**
Genetics of populations This course will teach fundamental and applied genetic principles that are essential for the management of forest and other ecosystems to maintain their long-term health and sustainability. The course explores how genetic variation and its loss affect the ability of natural populations to adapt to changing environments. The class will focus on the interrelationship between human impact and evolutionary factors acting on genetic variation patterns in natural populations. Basic principles in population genetics (e.g. measurements of genetic variation, molecular markers techniques, the Hardy Weinberg model, changes in genetic variation by mutation, gene flow, genetic drift, selection) will be presented. Biodiversity of fungi The fungal kingdom consists of possibly up to 5.2 million distinct species of diverse ecological functions. Species biodiversity, evolution and modern taxonomy are defined in bar-coding projects by molecular markers (ITS sequences). Fungi with saprotrophic, symbiotic or pathogenic life styles differ much in their genomes by loss, gain, multiplication and diversification of genes for proteins providing important functions to deal with their specific habitats and substrates. Students will be introduced into computorial programs and DNA and protein databases to analyse fungal molecular markers, gene structures (introns, exons) and protein products (Fasta files, Clustal, MEGA, phylogenetic trees, Blast searches, Signal P) Biodiversity of communities and ecosystems The students learn about fundamental concepts how communities are structured and how their diversity and composition can be analyzed. Basic concepts of community structure (abundance, evenness, rarity), of different scales of diversity (alpha, beta, gamma) as well as of the different dimension of diversity (taxonomic, functional, phylogenetic) will be introduced. Students learn how to perform basic analyses of species diversity in the software package R.	Attendance time: 56 h Self-study time: 124 h

Course: Genetics of populations (Lecture, Exercise)	2 WLH
Course: Biodiversity of fungi (Lecture, Exercise)	1 WLH
Course: Biodiversity of communities and ecosystems (Lecture, Exercise)	1 WLH
Examination: Term Paper (max. 20 pages)	6 C

Examination requirements:	
Students should demonstrate sound knowledge of basic concepts in population genetics and community structure, genetic diversity parameters, different scales and dimensions of diversity , methods of fungal biodiversity assessment and of basic analysis tools for biodiversity assessment.	

Admission requirements:	**Recommended previous knowledge:**

none	none
Language: English	**Person responsible for module:** Prof. Dr. Oliver Gailing
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.113: Soil Hydrology**	6 C 4 WLH

Learning outcome, core skills:	**Workload:**
The course consists of three interconnected parts. The theoretical background (1) describes the fundamental static and dynamic principles of soil water, starting with the special physical properties of water molecules continuing with the basic static traits of soil water, e.g. water content and the energy state. The latter is important for the understanding and calculation of soil water flow under saturated and unsaturated conditions. The water balance of the soils will be completed by the potential sinks of soil water in ecosystems, like e.g. drainage, evaporation, root water uptake, and transpiration. The theoretical lectures will be accompanied by experimental exercises (2): lab measurements of bulk density, water content, water potential, conductivity, pF-curve are important parameters describing the state of soil water. Additionally, automated soil lysimeters with or without plants will be provided to the students for self-initiated experiments. The self-measured hydrological and meteorological time series data are the basis for the third part (3), the modelling of soil water cycles. Based on the learned experimental and theoretical skills, the basic principles of soil water modelling are explained and practiced.	Attendance time: 56 h Self-study time: 124 h

Course: Soil Hydrology (Lecture, Exercise, Practical course)	4 WLH
Examination: Term Paper (max. 20 pages)	6 C

Examination requirements:	
Theoretical and experimental skills of soil hydrology	

Admission requirements:	**Recommended previous knowledge:**
none	none
Language: English	**Person responsible for module:** Dr. Martin Jansen
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.122: Ecological Simulation Modelling**	6 C 4 WLH

Learning outcome, core skills: • Knowledge of the modelling techniques covered; • Ability to find a suitable modeling technique for a given problem in the area of ecology and to apply it independently; • Knowledge of the current state of research in ecological modelling; • Critical appreciation and discussion of research results; • Refined presentation techniques; • Knowledge of constructive feedback techniques.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Simulation modelling (Lecture, Exercise)	3 WLH
Course: Current Topics in Ecological Modelling (Seminar)	1 WLH
Examination: Term paper (max. 10 pages, 75%) and presentation (approx. 20 minutes) with written outline (25%)	6 C

Examination requirements: • Know, explain, apply, analyse and assess model types that are applied in ecology • Know, explain, apply, analyse and assess the stages of model development along the modeling cycle • Understand and summarize published model studies and point out and discuss their possibilities and limitations • Moderate presentations and discussions	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Kerstin Wiegand
Course frequency: each summer semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: 20	

Additional notes and regulations:

20 students are only possible if a corresponding number of computers is available.

Module is also applicable for other study programs, such as MSc "Biological Diversity and Ecology", MSc "Agriculture" (specialization Ressourcenmanagement).

Georg-August-Universität Göttingen **Module M.FES.124: Modern Concepts and Methods in Macroecology and Biogeography**	6 C 4 WLH

Learning outcome, core skills: The course will introduce students to the principles and modern methods in macroecology and biogeography. Students will gain a comprehensive understanding of the physical and biological processes influencing species distributions and diversity patterns worldwide. Additionally, students will be introduced to modern environmental and biodiversity modelling methods in R, which are important for analyzing and understanding the consequences of global change on species distributions. In self-directed projects, students will work with real data to solve modern macroecological problems. Through these theoretical and practical classes, students will gain a profound understanding of modern macroecological and biogeographical concepts, including threats to biodiversity and conservation prioritization.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Modern concepts and methods in macroeco-logy and biogeography (Lecture, Exercise) *Contents*: Exercise = Computer course (3 WHL) and Lectures (1 WHL)	4 WLH
Examination: Term Paper (max. 20 pages)	6 C

Examination requirements: Students can apply knowledge about modern concepts and methods in macroecology and biogeography. They demonstrate knowledge on how to plan, conduct and report on a macroecological analysis using modern computer software.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Holger Kreft
Course frequency: each summer semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.311: Tropical forest ecology and silviculture**	6 C 4 WLH

Learning outcome, core skills: General understanding of ecological concepts regarding tropical forests and their characteristics. Critically analyse silvicultural systems considering their advantages and drawbacks.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Tropical forest ecology and silviculture (Lecture) *Contents*: This course focuses on the ecology of tropical rain forests, threats to forests and options for ecologically sound land use. Lectures on forest ecology include characteristics of different tropical forest types such as lowland forest, montane forest, mangrove forest, and additionally the biodiversity of the forest, the role of fire, and the carbon balance of forests. More applied topics address silvicultural systems such as polycyclic and monocyclic management systems.	4 WLH
Examination: Oral examination (approx. 20 minutes)	6 C

Examination requirements: Emphasis lies on the ecology of tropical rain forests and options for ecologically sound management. Students shall know e.g. characteristics of different forest types, features of management systems and discuss land use options.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Dirk Hölscher
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.312: International Forest Policy and Economics**	6 C 4 WLH

Learning outcome, core skills: **Global environmental and forest policy:** The objective is that students get basic knowledge of both the key policies related to forests and the application of the policy analysis on such issues. Students acquire comprehension about global forest related policy processes and factual knowledge about forest actors affecting the policy on a global level. The seminar combines a lead-in to global policy theory and its translation in practical, empirical knowledge about actors and processes of high importance in forestry. The different instruments for international policy formulation and implementation are discussed using case studies. **International forest economics:** The lecture is split in two main areas: 'International Wood Markets' and 'International Environmental and Forest Conservation'. The first part deals with the international trade with wood and wood products. International markets and the consequences of protectionism are analysed. Furthermore, aspects of international wood marketing are shown. In the second part, international environmental problems are described and possibilities as well as constraints for international co-operation are discussed. Finally, relations between environmental conservation and economic development are analysed.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Global environmental and forest policy (Seminar)	2 WLH
Examination: Written examination (60 minutes)	3 C

Course: International forest economics (Lecture)	2 WLH
Examination: Written examination (60 minutes)	3 C

Examination requirements: • Familiarity with international wood markets and international trade with wood and wood products • Understanding of international wood marketing • Ability to analyse consequences of protectionism • Apply economic theory in order to analyse possible solutions towards international environmental problems • Sound understanding of the relations between forest conservation and economic development	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Carola Paul
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted:	**Recommended semester:**

cf. examination regulations	
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.313: Monitoring of Forest Resources**	6 C 4 WLH

Learning outcome, core skills: Familiarize the students with the range of methods and techniques applied to forest monitoring in the preparation, planning, implementation and analysis phase. Objective is that the students are eventually in the position to carry out their own monitoring projects, and that they have the criteria to judge the quality of monitoring projects in general. Focus is on the target-oriented planning and the definition of the most appropriate sampling design and plot design that guarantees the generation of high-quality information for the decision makers in forestry.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Monitoring of forest resources (Lecture, Exercise) *Contents*: Forest monitoring is a forestry discipline that aims at the comprehensive and objective characterization of the forests as a production system and/or as an ecological system in a defined geographic area, in terms of status quo and changes. Forest inventories are the core element of monitoring and they generate data and information required by foresters, forest politicians and forest researchers to support decision making. The course module “Monitoring of forest resources” intends to familiarize the students with the range of methods and techniques applied to forest inventories in the preparation, planning, implementation and analysis phase. Objective is that the students are eventually in the position to carry out their own monitoring projects of forests and related resources, and that they know the criteria to judge the quality of monitoring projects in general. Focus is on the target-oriented planning and the definition of the most appropriate sampling design and plot design that guarantees the generation of high-quality information for the decision makers in forestry. That includes comprehensive presentation of statistical sampling. Examples of small and large area inventories and monitoring are presented and critically analysed. The important remote sensing applications for forest monitoring are not dealt with in detail in this module, as this topic is covered in other modules; but the relevance of integrated inventories (combining field sampling and remote sensing) is addressed. The development of forest inventories towards integrated “landscape inventories”, “multi-resource inventories”, “tree inventories” is also addressed of this course. Prerequisites: Sound basis in “Forest mensuration” and basic statistics.	4 WLH
Examination: Written exam (120 minutes)	6 C

Examination requirements: In the module „Monitoring of Forest Resources“, the students should know and be able to manage and understand all topics that were covered in the lectures and labs. This includes: • the relevance of data sources and data quality; • the relevance of methodological soundness in planning, implementing and analyzing forest inventory data;	

• the basic principles of in planning, implementing and analyzing forest inventory data; • important options of sampling and plot design and its characteristics (including application examples and calculation of estimates); • the critical reading of forest inventory reports; • the role of forest inventories when monitoring the “resource forest” and the “ecosystem forest“; • the role of forest inventory and forest monitoring in decision processes at stand-, enterprise-, national and global level. And, of course, calculation skills in producing sample based estimates are equally relevant.	

Admission requirements: none	**Recommended previous knowledge:** Required is a good command of forest mensuration, descriptive statistics, basic sampling statistics and cartography (along what is commonly covered in Bachelor study programs).
Language: English	**Person responsible for module:** Prof. Dr. Christoph Kleinn
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.321: Ecopedology of the tropics and suptropics**	6 C 4 WLH

Learning outcome, core skills: General understanding of the most important aspects of tropical and subtropical soils, their occurrence, genesis, geography, properties and use. Understanding the principles of the international FAO soil profile description and classification.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Ecopedology of the tropics and subtropics (Lecture) *Contents*: Part I: General introduction in soils of the tropics and subtropics, their functions, genesis, geography and properties. Objective: general understanding of the most important aspects of tropical soils, their occurrence, genesis, properties and use. The following topics will be discussed: Introduction; Climate, water and vegetation; Weathering and weathering products, clay minerals; Soil organic matter, C and N dynamic; Soil chemical reactions, variable charge; Soil forming processes and development of soils; Water and nutrient cycling of land use systems; Tropical shield areas (example: Amazon basin); Arid shields and platforms (example: West Africa); Tropical mountain areas (example: Andes); Fluvial and coastal areas in the tropics (example: coastal areas in Asia). Part II: Introduction in the description and classification of soils, using in international system (FAO). Objective: understanding the principles of the FAO soil profile description and classification. The course consists of introductory lectures in which the principles of the FAO soil description and classification will be explained. This knowledge will be practiced using examples of soil profiles from different tropical countries. The second part consists of a practical week during which soil profile descriptions and evaluations will be exercised in the field. We will visit three contrasting sites around Göttingen where a site and soil description will be made. The work will be done in small groups. Students discuss their results in a report.	4 WLH
Examination: Term paper (10 pages max.) and written exam (2 hours)	6 C

Examination requirements: Kenntnis der beschriebenen Lehrinhalte, Erreichung der festgelegten Lernziele und Nachweis der angestrebten Kompetenzen.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Edzo Veldkamp
Course frequency: each summer semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.711: Exercises in Forest Inventory**	6 C 4 WLH

Learning outcome, core skills: The students shall learn to design, to implement, to document and to cause forest inventory projects autonomously and on a scientific basis. Further on, they shall develop the abilities to optimize and to develop measuring methods related to forests. Therefore, it is crucial to handle common measuring instruments and methods safely.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Exercises in forest inventory (Lecture, Exercise) *Contents*: • Short repetition about the use of instruments for measuring DBH, upper diameters and heights. • Planning, preparation and implementation of a sample based forest inventory, including the designing of an inventory instruction. • Data management (Excel) and analysis after given tasks. • Formulating a project report. • Presentation of results in small groups within a seminar for examination.	4 WLH
Examination: Oral presentation (approx. 15 minutes, 25%) with written outline (max. 15 pages, 75%)	6 C

Examination requirements: The students shall give evidence that they know how to plan, implement and analyse a forest inventory. Such experience will be accumulated during the practical exercises. This includes • design planning regarding sampling and plot design; • formulation / improvement of a forest inventory field manual; • data analyses and working on pre-defined questions and hypotheses; • Presentation of inventory results and defending them against criticism. The weighting will be done according to the reached points.	

Admission requirements: none	**Recommended previous knowledge:** Good command of forest mensuration and forest inventory, including calculation skills regarding analyses of inventory data.
Language: English	**Person responsible for module:** Prof. Dr. Christoph Kleinn
Course frequency: each summer semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: 12	

Georg-August-Universität Göttingen **Module M.FES.712: Bioclimatology and global change**	6 C (incl. key comp.: 6 C) 4 WLH

Learning outcome, core skills: Scientific basis of climate and climate change, trace gas budgets of soils and whole ecosystems and the potential to sequester carbon and nitrogen in managed and unmanaged terrestrial ecosystems.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Bioclimatology and global change (Lecture) *Contents*: The module "Bioclimatology and Global Change" will introduce the students to the global climate system and its interaction with the biosphere. A lecture course will focus on the scientific basis of climate and climate change covering basic physical and chemical processes governing the climate system, climate zones, modelling as well as global and regional climate phenomena with a focus on tropical climates. A seminar course will highlight trace gas budgets of soils and whole ecosystems and their potential to sequester carbon and nitrogen in managed and unmanaged terrestrial ecosystems and their vulnerability to climate change. Using journal literature the students will work out oral presentations concerning current research topics concerning the global climate system and its interaction with the biosphere.	4 WLH
Examination: Written exam (90 minutes, 50%) and oral presentation (approx. 20 minutes, 50%)	6 C

Examination requirements: Understanding the most relevant processes at the biosphere-atmosphere interface and of biogeochemical cycles. Being able to find, read, evaluate, and present scientific literature related to Global Change.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Alexander Knohl
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: 30	

Georg-August-Universität Göttingen **Module M.FES.713: Forestry in Germany**	6 C 4 WLH

Learning outcome, core skills: Understanding of forestry and related industries in Germany.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Forestry in Germany (Excursion, Seminar) *Contents*: Important aspects of German Forestry are introduced to foreign students interested in the forest management as practised in Germany as well as the wood-processing industry. Contents are forest management, silviculture, forest utilization, labor science and prozess technology, forest econmics, tree improvement and genetics, forest inventory and remote sensing (forest management inventories in Germany, the German National Forest Inventory, applications of remote sensing in forestry planning in Germany) The module provides a basic understanding of the forest management in Germany including actual trends and perspectives. It is strongly suggested for foreign students who are going to undertake their project in Germany (Project: 70130 "Managing sustainable forestry systems in Germany"). The module includes various excursions.	4 WLH
Examination: Oral presentation (approx. 15 minutes) with written outline (max. 15 pages)	6 C

Examination requirements: The students should know and manage and understand the topics that were covered during the field trip that AWF (Forest Inventory and Remote Sensing) offers. This includes forest mensuration, forest monitoring and forest planning. Show familiarity with current approaches, trends and future challenges in forestry and the wood-processing industry in Germany Show understanding of the overall structure of forestry and forest research in Germany and the connection between the sub disciplines Be able to communicate and critically analyse a selected aspect of German forestry in a coherent way	

Admission requirements: none	**Recommended previous knowledge:** Basic knowledge in forest management, forest planning, forest inventor.
Language: English	**Person responsible for module:** Prof. Dr. Carola Paul
Course frequency: each summer semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted:	**Recommended semester:**

cf. examination regulations	
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.718: Botanical/Biogeographical excursion**	6 C 4 WLH

Learning outcome, core skills: The students have a broad and comprehensive overview of the biotic and abiotic characteristics at the excursion destination including flora, vegetation, land-use, topography, geology and climate. They have familiarized with the flora of a foreign biogeographic region and are able to identify local plant species using identification literature. In addition, they are able to plan and perform different kinds of vegetation sampling methods in the field. In the seminar, the students have prepared themselves under guidance for exploring the nature of a foreign place and are able to plan future scientific expeditions. They have gained a profound understanding of biogeographical as well as plant and vegetation ecological principles related to both general theories and the excursion destination.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Preparation seminar for Botanical/Biogeographical excursion (Exercise, Seminar)	1 WLH
Examination: Presentation (approx. 20 minutes, 50%) and term paper [exkursion protocoll] (max. 10 pages, 50%) **Examination requirements:** Floristic, vegetation ecological and geographical characteristics at the excursion destination; basic vegetation sampling methods; alpha, beta, & gamma diversity; plant community composition and its dependence on abiotic site conditions; biogeographic concepts.	6 C

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Holger Kreft
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: 15	

Georg-August-Universität Göttingen **Module M.FES.719: Remote sensing image processing with open source software**	6 C 4 WLH

Learning outcome, core skills: This combined lecture and lab makes the student familiar with basic principles, techniques and applications of remote sensing. The students learn skills in digital image processing and information extraction using open source software on own laptops.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Remote sensing image processing with open source software (Lecture, Exercise) *Contents*: The course introduces the theories (via lectures and literature) and applications (including computer exercises) of remote sensing workflows. Remote sensing data from different sensors (cameras, LiDAR scanners, RADAR) and platforms (satellites, aircrafts and unmanned aerial systems (UAS)) are used to develop analysis workflows for forestry and environmental monitoring applications. Common steps and methods of remote sensing analysis such as preprocessing, image enhancement, sampling of reference data, automated classification and estimation and map validation are presented. In the practical labs, students deepen their knowledge and skills with small projects such as land cover classification, individual tree detection, biomass estimation and change detection using open source technologies.	4 WLH
Examination: Oral exam (approx. 15 minutes, 80%) and practical exam (approx. 15 minutes, 20%)	6 C

Examination requirements: The students should know and manage and understand and have insights into all topics that are covered in the module that consists of lectures and predominantly on labs where the students learn image analysis on their own notebooks: the exam requirements include: • Bases of electromagnetic radiation and its interactions with the atmosphere and terrestrial land cover types; • Basic techniques of remote sensing image acquisition, pre-processing, enhancement and classification – as covered in the lectures and labs; • Knowledge and skills regarding application of the software as used in the practical labs; • Options of remote sensing integration into forest monitoring regarding both mapping and estimation; • Assessing quality of remote sensing products, including accuracy analysis.	

Admission requirements: none	**Recommended previous knowledge:** Good command of forest mensuration and forest inventory, including calculation skills regarding analyses of inventory data.

Language: English	**Person responsible for module:** Prof. Dr. Christoph Kleinn
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.FES.721: Ecological functions of wildlife: implications for conservation and management**	6 C 4 WLH

Learning outcome, core skills:	**Workload:**
Animals fulfill various ecological roles within ecosystems. For example, many vertebrate species act as ‘mobile links’ and transport genetic material or organic matter across large spatial extends. Similarly, the presence or absence of large carnivores, or the abundance of large herbivores in an ecosystem can substantially impact its properties. While the reciprocal relationships between animals and the environment have long been recognized in ecology, we are only now realizing how important anthropogenic activities are for the functions that animals have in ecosystems. The aim of the course is to provide students with an overview of the ecological functions of vertebrate animals and why considering human influences on vertebrate species can be crucial for ecosystem management and biodiversity conservation. In addition, the course will also provide students with a basic understanding on how to investigate these functions and their consequences for ecosystem functions and services	Attendance time: 56 h Self-study time: 124 h

Course: Ecological functions of wildlife: implications for conservation and management (Lecture, Seminar)	4 WLH
Examination: Oral Presentation (approx. 20 minutes) **Examination prerequisites:** Written exam (30 minutes)	6 C

Examination requirements:	
To successfully complete the course, students have to demonstrate a general understanding of 1. functions fulfilled by vertebrates within ecosystems; 2. human impacts on these ecosystem functions; 3. how to analyze animal-ecosystem relationships; 4. the implications of animal-ecosystem relationships for management and conservation The written exam (examination prerequisite) will take place in the first half of the semester.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Niko Balkenhol
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: cf. examination regulations	**Recommended semester:**
Maximum number of students:	

40	

Georg-August-Universität Göttingen **Modul M.Forst.212: Ökologische und politische Grundlagen des Waldnaturschutzes** *English title: Ecology and Politics of Forest Nature Conservation*	6 C 4 SWS

Lernziele/Kompetenzen: Ziel ist der Erwerb vertiefter Kenntnisse zu naturschutzpolitischen Instrumenten und ökologischen Grundlagen, welche Konzepte und aktive Umsetzung von Naturschutz im Wald beeinflussen. Die Studierenden erkennen die Bedeutung waldökologischer Beziehungen auf stofflicher und organismischer Ebene für die Entwicklung eines wirkungsvollen Naturschutzes und können diese in bestehende Naturschutzstrategien einordnen. Die Studierenden erwerben zudem vertiefte Kenntnisse zu gesellschaftlichen und staatlichen Akteuren der Naturschutzpolitik sowie zu ausgewählten Steuerungsinstrumenten.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Ökologische und politische Grundlagen des Waldnaturschutzes (Seminar) *Inhalte*: • Zielgerichteter Umgang mit Originalliteratur zu den Themenfeldern Ökosystemforschung, Waldökologie und Stoffhaushalt, Diversität von Tieren und Pflanzen sowie Waldnaturschutz und Naturschutzpolitik • Umsetzung ökologischer Kenntnisse in Waldnaturschutzkonzepte • Handlungspotentiale der Akteure und die Potentiale der Instrumente für die Lösung von Konflikten im Waldnaturschutz	4 SWS
Prüfung: Referat (ca. 20 Minuten) mit schriftl. Ausarbeitung (max. 10 Seiten) **Prüfungsvorleistungen:** Regelmäßige Teilnahme	6 C

Prüfungsanforderungen: • Kenntnisse und Verständnis ökologischer Grundlagen und der sich daraus ergebenden gesellschaftlichen Konfliktfelder im Waldnaturschutz • Kenntnisse und Verständnis der Rolle politischer Akteure und der Steuerungspotentiale politischer Instrumente. • Entwicklung von Präsentations- und Diskussions-Kompetenz	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Andreas Schuldt
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: gemäß Prüfungs- und Studienordnung	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Georg-August-Universität Göttingen **Modul M.Forst.214: Biodiversität** *English title: Biodiversity*	6 C 4 SWS

Lernziele/Kompetenzen: Die Studierenden kennen Konzepte und Inhalte moderner Biodiversitätsforschung. Sie haben theoretisches Wissen darüber erworben, welche Funktionen Biodiversität z.B. im Zusammenhang mit der Stabilität und Funktionalität von Ökosystemen erfüllt. Sie kennen methodische Ansätze und Indizes, um die Biodiversität auf unterschiedlichen Ebenen biologischer Organisation (molekular, organismisch, ökosystemar) und räumlicher Skala (lokal, regional, global) zu quantifizieren, zu analysieren und zu bewerten. Die Studierenden erwerben Kenntnisse zur prozess-basierten Modellierung und zur fortgeschrittenen statistischen Analyse von Biodiversitätsmustern.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Biodiversitätstheorien (Seminar)	1 SWS
Lehrveranstaltung: Funktionelle Biodiversität (Vorlesung, Exkursion)	1 SWS
Lehrveranstaltung: Quantifizierung und Analyse von Biodiversität (Übung, Seminar)	2 SWS
Prüfung: Klausur (120 Minuten) und unbenotete Präsentation (ca. 15 Minuten) **Prüfungsanforderungen:** • Moderne Konzepte, Verfahren und Methoden der Quantifizierung und Analyse von Biodiversität kennen und anwenden • Diversitätaufnahmen planen und analysieren • Lebensweisen von Pilzen und ihre Funktionen in ihren Biotopen kennen und ableiten • Beziehungen zu anderen Organismen und Einflüsse von Pilzen auf Biodiversität erkennen und ableiten • Methoden zur Bestimmung von Pilzarten und zur genetischen Biodiversität kennen • Biodiversitätstheorien und verwandte Konzepte kennen, erläutern, anwenden und analysieren • Biodiversitätstheorien in einer Debatte erörtern • Naturschutzrelevanz von Biodiversitätstheorien kritisch beurteilen	6 C

Prüfungsanforderungen: Kenntnisse über Konzepte und Inhalte moderner Biodiversitätsforschung und über Funktionen von Biodiversität im Zusammenhang mit der Stabilität und Funktionalität von Ökosystemen; Moderne Verfahren und Methoden der Quantifizierung und Analyse von Biodiversität.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Holger Kreft
Angebotshäufigkeit:	**Dauer:**

jedes Wintersemester	1 Semester
Wiederholbarkeit: gemäß Prüfungs- und Studienordnung	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 15	

Georg-August-Universität Göttingen **Modul M.Forst.221: Fernerkundung und GIS** *English title: Remote Sensing and GIS*	6 C 4 SWS

Lernziele/Kompetenzen: Ziel der Veranstaltungen dieses Moduls ist es, den Studierenden einen umfassenden Einblick in die wesentlichen Arbeitsabläufe der fernerkundlichen digitalen Bildverarbeitung und -analyse zu geben. Die Veranstaltung ist in die aufeinander abgestimmten Teilmodule "Geografische Informationssysteme" und „Fernerkundung“ gegliedert. Beide Teile ermöglichen eine Erweiterung der im Bachelorstudium erworbenen, grundlegenden Kenntnisse. In praxisorientierten Kleinprojekten sollen die Studierenden Grundkenntnisse der Vektor- und Rasterdatenverarbeitung in Theorie und praktischer Anwendung kennenlernen und in einem GIS umsetzen. Die Studierenden sollen sich nach den Lehrveranstaltungen auf Basis der erworbenen Grundkenntnisse selbstständig spezielle Verarbeitungsfunktionen erschließen können und sollen auch die Möglichkeiten der Automatisierung von Geodaten-Verarbeitungsprozessen kennen. Die Lehrveranstaltungen versetzen die Studierenden in die Lage, selbstständig Projekte auf raumbezogener Datenbasis, ausgehend von der fernerkundlichen Informationsextraktion aus digitalen Bilddaten bis zur Analyse der generierten Geoobjekte, zu bearbeiten. Die Studierenden sollen befähigt werden, analytisch raumbezogene Fragestellungen zu lösen, Arbeitsprozesse zu strukturieren und zu gestalten sowie dafür im Team zu arbeiten und kooperativ zu agieren. Die in Vorlesungen und Übungen vermittelten Kenntnisse orientieren sich an den aktuellen Anforderungen raumbezogener interdisziplinärer Forschungsprojekte.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Geografische Informationssysteme (Vorlesung, Übung) *Inhalte*: Grundlagen der Vektor- und insbesondere Rasterdatenverarbeitung, Installation eines konkreten GIS, Benutzungsoberfläche, Hinzufügen von Layern, Transformation von Koordinatensystemen, Projektdateien, Geodatenformate, Geo-Datenbanken, Karten-Webdienste, Erstellung von Drucklayouts; Erstellung von Vektordaten, Verarbeitungsfunktionen für Vektordaten; Rasterdaten symbolisieren, Verarbeitungsfunktionen für Rasterdaten, Automatisierung von Verarbeitungsprozessen.	2 SWS
Prüfung: Klausur (60 Minuten)	3 C

Lehrveranstaltung: Fernerkundung (Vorlesung, Übung) *Inhalte*: Prinzipien der digitalen Bildverarbeitung, Prinzipien der geometrischen und radiometrischen Bildkorrektur, Evaluation der Bildqualität auf Basis von Bildstatistiken, Prinzipien der Bildverbesserung, Vorstellung aktueller Sensoren und Plattformen zur Erdbeobachtung, Verwendung von überwachten und unüberwachte Klassifikationsverfahren zur Erstellung thematischer Karten, Genauigkeitsanalyse thematischer Karte, Analyse von 3D Punktwolken, multi-temporale Bildanalyse.	2 SWS
Prüfung: Klausur (60 Minuten)	3 C

Prüfungsanforderungen:	

Geografische Informationssysteme:
Theorie der Vektor- und Rasterdatenmodelle und -verarbeitung, Kenntnis der Benutzungsoberfläche eines konkreten GIS und wichtiger Funktionalitäten wie Hinzufügen von Layern, Transformation von Koordinatenreferenzsystemen, Kenntnis verschiedener Geodatenformate, Geodatenbanken und Karten-Webdienste (insbes. WMS), Erstellung von Karten(-layouts). Fähigkeit zur Lösung raumbezogener Problemstellung unter Einsatz von Vektor- und Rasterdatenverarbeitungsfunktionen.

Fernerkundung:

- Grundlagen elektromagnetischer Strahlung und deren Interaktion mit der Atmosphäre und mit Landbedeckungsformen,
- Grundlegende Techniken der Fernerkundungsbildvorbereitung, -bearbeitung, -verbesserung und -klassifikation, wie in den Übungen behandelt,
- Anwendung der Software, die in den Übungen verwendet wird,
- Beurteilung der Qualität von Fernerkundungs-Bildprodukten, einschließlich Genauigkeitsanalyse.

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** Erforderlich sind Kenntnisse in der Kartografie, der Fernerkundung, deskriptiven Statistik und einfachen Stichprobenstatistik sowie GIS-Grundkenntnisse (entsprechend den üblichen Lehrveranstaltungen in Bachelorstudiengängen).
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Winfried Kurth
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: gemäß Prüfungs- und Studienordnung	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 40	

Georg-August-Universität Göttingen **Modul M.Forst.222: Klima- und Bodenschutz** *English title: Climate and Soil Protection*	6 C 4 SWS

Lernziele/Kompetenzen: Die Veranstaltung vermittelt grundlegende Kenntnisse im Bereich Klima- und Bodenschutz durch Wälder. An Hand von eigenständig durchgeführten Messungen werden wichtige Prozesse und Kenngrößen zur Kohlenstoff-Speicherung im Boden und im Gesamtökosystem Wald kennengelernt und die eigenen Daten im Kontext Global Change und Waldökosystem diskutiert.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Klima- und Bodenschutz (Praktikum) *Inhalte*: Waldökosysteme agieren als Quellen und Senken für CO2 in der Atmosphäre und sind somit wichtige Komponenten des globalen Klimasystems. Dabei wird CO2 durch die Assimilation der Bäume aufgenommen und durch die Respiration von Böden und Bäumen abgegeben. Ihr Verhältnis bestimmt den Netto-CO2-Fluß eines Waldgebietes und die Schutzfunktion des Ökosystems Wald auf das Klima. Ziel dieses Methodenpraktikums ist es, die Kohlenstoffspeicherung in Böden und im Gesamtökosystem zu quantifizieren und ihre Einflussfaktoren zu identifizieren. Dazu werden die Studierenden die Eddy Covariance Methode kennenlernen und Messungen an einem Wald-Messturm durchführen. Des Weiteren werden direkte CO2 Flussmessungen aus dem Boden in die Atmosphäre mit Bodenhauben durchgeführt und Methoden zur Quantifizierung von Bodenkohlenstoff vermittelt.	4 SWS
Prüfung: Hausarbeit (max. 10 Seiten) und Präsentation (ca. 20 Minuten)	6 C

Prüfungsanforderungen: Verständnis der Rolle von Wäldern im Klimaschutz, des Kohlenstoffkreislaufs auf lokaler und globaler Ebene sowie der wichtigsten Messverfahren zum Kohlenstoffkreislauf in Waldökosystemen. Fähigkeit zur Interpretation von Meßgrößen und der entsprechenden Prozesse sowie Fähigkeit zur Anwendung von Konzepten und Formeln zur quantitativen und qualitativen Beschreibung der Prozesse.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Alexander Knohl
Angebotshäufigkeit: jedes Sommersemester	**Dauer:** 1 Semester
Wiederholbarkeit: gemäß Prüfungs- und Studienordnung	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Georg-August-Universität Göttingen **Modul M.Forst.786: Wald-Wild-Seminar** *English title: Forest-Game-Seminar*	6 C 4 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
Fähigkeit zur sicheren Anwendung waldbaulicher, wildbiologischer und jagdkundlicher Methoden im Umgang mit Schalenwild unter ökologischen und ökonomischen Aspekten.	Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Wald-Wild-Seminar (Übung, Seminar) *Inhalte*: Das Seminar beleuchtet den Wald-Wild-Konflikt aus verschiedenen Perspektiven. Dabei wird der Wald-Wild-Konflikt aus Sicht der Forstwirtschaft, des Naturschutzes, der Wildtierbiologie und der Jagd beleuchtet. Die Studierenden erarbeiten in Kleingruppen vorgegebene Themen zum Wald-Wild-Konflikt (z. B. Einfluss von Wildtieren auf Vegetation, Wilddichten und Wildschäden, Störungen durch Menschen oder die Rückkehr von Großprädatoren und der Wald-Wald-Konflikt). Neben der Präsentation bilden fachliche Diskussionen nach den Präsentationen einen wesentlichen Bestandteil des Seminars.	4 SWS
Prüfung: Präsentation (ca. 30 Minuten)	6 C

Prüfungsanforderungen:	
Sachliche und objektive Präsentation eines vorgegebenen Themas des Wald-Wild-Konfliktes unter der Berücksichtigung der aktuellen wissenschaftlichen Primärliteratur. Aktive Teilnahme an Diskussionen.	

Zugangsvoraussetzungen:	**Empfohlene Vorkenntnisse:**
keine	keine
Sprache: Deutsch	**Modulverantwortliche[r]:** M.Sc. Katharina Westekemper
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: gemäß Prüfungs- und Studienordnung	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 30	

Georg-August-Universität Göttingen **Modul M.Geg.03: Globaler Umweltwandel / Landnutzungsänderung** *English title: Global Change / Land Use Change*	6 C 4 SWS

Lernziele/Kompetenzen: Die Studierenden verfügen über ein Überblickswissen zur Forschung über Klimawandel und Global Change. Die Studierenden sind in der Lage: • Veränderungen der Umwelt unter dem Einfluss des Menschen zu analysieren, • typische Syndrome und Syndromkomplexe zu erkennen und zu verstehen, • Global Change als zentrales Thema der Geographie an der Schnittstelle von Natur- und Gesellschaftswissenschaften zu erkennen, • Adaptation- und Mitigation-Ansätze zu bewerten. **Modulinhalte der Vorlesung:** Das Modul bearbeitet in der Vorlesung folgende Themen: • Basiswissen Klimawandel – Summary des IPCC AR5-Report der WGI • Basiswissen Klimawandel in Deutschland • Zivilisationsdynamik der Menschheit • Industrielle Revolution und ihre anhaltende Raumwirksamkeit • Kippelemente mit direkter und indirekter Wirkung auf die zukünftige Menschheitsentwicklung • Bevölkerungsentwicklung und Ernährungssicherung • Global und regionale Wasserressourcen • Globaler Umweltwandel und Gesundheit der Menschheit (Global Health - One Health Ansatz) • Globale Umweltsyndrome • Energieversorgung der Menschheit - Transformation der Energiesysteme **Modulinhalte des Seminars:** Das Seminar nimmt aktuelle Themen des Globalen Umweltwandels auf wie z.B. Themen der Energiewende in Deutschland, das Erneuerbare-Energien-Gesetz (EEG), Landnutzungswandel, Anpassung der Pflanzenproduktion an den Klimawandel, Bevölkerungswandel und Konsumentenwandel etc.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Globaler Umweltwandel (Global Change) (Vorlesung)	2 SWS
Lehrveranstaltung: Spezielle Fallbeispiele des Globalen Umweltwandels (Seminar)	2 SWS
Prüfung: Klausur (90 Minuten) **Prüfungsvorleistungen:** Regelmäßige Teilnahme am Seminar; Referat mit schriftl. Ausarbeitung (ca. 30 Min., max. 20 S.) oder Projektbericht (max. 20 S.) und Projektpräsentation (ca. 30 Min.)	6 C

Prüfungsanforderungen: Die Studierenden erbringen den Nachweis, dass sie das Grundlagenwissen im Bereich des globalen Klima- und Umweltwandels beherrschen und den Forschungsstand zu	

Klimawandel und Global Change überblicken. Ferner erbringen sie den Nachweis, dass sie die Veränderungen der Umwelt unter anthropogenen Einfluss analysieren, typische Syndrome und Syndromkomplexe erkennen und verstehen sowie Adaptions- und Mitigationsansätze bewerten können.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Deutsch	**Modulverantwortliche[r]:** Prof. Dr. Martin Kappas
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 40	

Georg-August-Universität Göttingen **Module M.INC.1001: International Nature Conservation**	6 C 4 WLH

Learning outcome, core skills: This course provides knowledge about nature conservation. In the lecture, the students learn the principles of conservation biology and different aspects of international nature conservation. This includes hotspots of global biodiversity as well as their main threats. In the seminar the following topics will be discussed: International Conventions (CBD, CMS, CITES, RAMSAR, UNCCD, UNFFCCC, MAB), International Agencies (IUCN, UNEP, WCMC, IPBES, Development Organisations), North-South Issues (Ecological Footprint, Land Grabbing, Management and Research Capacities, Biodiversity Governance), Protected Area Management (Theoretical Base, CBD working programme PoWPA, UNESCO, Adaptive Management), Communication and Education, Sustainable Financing of Conservation - Basics and Instruments (Carbon & Biodiversity, REDD+, CDM, PES), Valuing Biodiversity (TEEB), Business- and Managementplans (long-term financial planning, new revenues, Strategic Environmental Assessment (SEA)/Environmental and Social Impact Assessment (ESIA), Certification Schemes (FSC, MSC, RSPO) and how to deal with them.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: International Nature Conservation (Lecture)	2 WLH
Course: International Nature Conservation (Seminar)	2 WLH
Examination: Written examination (90 minutes) **Examination prerequisites:** Präsentation (ca. 30 Minuten) oder Hausarbeit (max. 10 Seiten) im Seminar	6 C

Examination requirements: The students understand the principles and concepts of international nature conservation, and they are able to apply this knowledge to conservation projects of different focuses. They are familiar with the various approaches in the field of applied conservation, and they can plan the steps necessary to implement an applied conservation project. In the seminar, the students focus on one of the topics mentioned above. They are able to apply theoretical knowledge to regional problems, and they can represent relevant cases of studies in a presentation or an assignment according to scientific standards.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. rer. nat. Matthias Waltert
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted:	**Recommended semester:**

twice	
Maximum number of students: 15	

Georg-August-Universität Göttingen **Module M.INC.1002: Statistics for field biologists**	6 C 8 WLH

Learning outcome, core skills: This module aims to provide a basic understanding of statistical analysis. A special emphasis is made on methods and requirements applicable to field biologists. It includes a lecture and a set of practical lessons during 15 days. The most common and practical software packages, Excel and SPSS, are demonstrated. Requirements: basics of applied statistics, study design and databases, selection and application of tests depending on biologically most common data (continuous, binomial, count and categorical), visual presentation of data, comparison of independent and dependent samples, relationships between variables, and multivariate analysis. One day between the course and the exam is allocated for individual work.	**Workload:** Attendance time: 112 h Self-study time: 68 h

Course: Statistics for Field Biologists (Lecture)	5 WLH
Course: Statistics for Field Biologists (Exercise)	3 WLH

Examination: Written examination (90 minutes)	6 C

Examination requirements: Students understand the basic aspects of statistics which are used in field biology and know how to apply modern methods to collect and analyze data. They know which statistical methods are most appropriate, how to apply them, how to extrapolate data and how to explain the results of data analysis. The course covers a broad spectrum of topics from data qualities to multivariate analysis and visual presentation of data.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Dr. Igor Khorozyan
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1
Maximum number of students: 25	

Georg-August-Universität Göttingen **Module M.INC.1003: Animal Conservation**	6 C 4 WLH

Learning outcome, core skills:	**Workload:**
In the lecture "Animal ecology" students will learn about advanced principles and theories of ecology and will be introduced current topics of ecological research. Focus in this lecture are e.g. models of populations, functional reactions, experimental analyses and modelling of interactions and food webs, macro-ecological correlations and theories. The module part "Origins of Conservation Biology" addresses the development of Conservation Biology as scientific field. It shows how important findings from Animal Ecology and Biogeography have shaped our understanding of human impact on animal communities and populations.	Attendance time: 56 h Self-study time: 124 h

Course: Animal Ecology (Lecture)	2 WLH
Examination: Written examination (90 minutes)	3 C

Course: Origins of Conservation Biology (Lecture)	2 WLH
Examination: Written examination (90 minutes)	3 C

Examination requirements:	
Knowledge of basic principles and theories of ecology, population models, functional reactions, analyses and modelling of organismic interactions and food webs as well as macro-ecological correlations. Understanding of Animal Ecology and Biogeography as basis for the development of Conservation Biology, knowledge on results of major studies carried out at community and population level.	

Admission requirements:	**Recommended previous knowledge:**
none	none
Language: English	**Person responsible for module:** Prof. Dr. rer. nat. Matthias Waltert
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:**
Maximum number of students: 10	

Georg-August-Universität Göttingen **Module M.INC.1004: Protected Areas**	6 C 10 WLH

Learning outcome, core skills: This module offers insights into the physical conditions, human use history and management options of Central European protected areas. During a set of single- or two-day excursions students will learn to know conservation objectives for protected areas of different legal status and deal with issues of ownership and relationships between actors involved in the management. At least one excursion will deal with the cultural landscape. The module also allows to deepen faunistic-ecological knowledge relevant for conservation practice, e.g. the assessment of conservation indicator groups.	**Workload:** Attendance time: 140 h Self-study time: 40 h

Course: Nature Conservation (Lecture)	2 WLH
Course: Biodiversity and Conservation (Excursion)	8 WLH

Examination: Assignment (max. 25 pages)	6 C

Examination requirements: Written paper describing the concrete case of a conservation site visited, with emphasis on the options and challenges to manage its biodiversity.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. rer. nat. Matthias Waltert
Course frequency: each summer semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 2
Maximum number of students: 2	

Additional notes and regulations: Can´t be combined with **B.Biodiv.340: Naturschutzbiologie**

Georg-August-Universität Göttingen **Module M.INC.1005: Population biology in nature conservation**	6 C 8 WLH

Learning outcome, core skills: Study of the methodology of an endangerment analysis (population viability analysis, PVA) of an animal species (case study partridge). The students determine causes of endangerment and develop options for the nature conservation in the cultural landscape. The students transfer empirically collected own data and data from the literature to a population model and develop a modeling of an endangered animal population. Core skills: collection and analysis of field data; use of population models; development of management options for an endangered animal species; knowledge of the telemetry as an important method for the registration of movement patterns of vertebrates.	**Workload:** Attendance time: 112 h Self-study time: 68 h

Course: Population viability analysis (Lecture)	
Course: Population viability analysis (Exercise)	

Examination: Assignment (max. 20 pages) **Examination prerequisites:** Presentation (15 min)	6 C

Examination requirements: Knowledge of the potential endangerment of specific animal species and measures for their protection in the cultural landscape. Modeling of endangered animal populations.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Dr. rer. nat. Eckhard Gottschalk
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1
Maximum number of students: 12	

Georg-August-Universität Göttingen **Module M.INC.2001: Internship semester**	30 C

Learning outcome, core skills: The students absolve a 12-week internship at either one or two organizations of nature conservation, preferably abroad. The aim of the internship semester is to carry out an applied project in nature conservation including data collection and analyses. Under professional guidance the students shall gain experience in a practical project. This internship will broaden their knowledge and provide experience in working intensively on a specific conservation topic and the possibility to specialize on research interests.	**Workload:** Attendance time: 0 h Self-study time: 900 h

Course: Internshipsemester (Internship) *Contents*: Internship at an organization of nature conservations (min. 12 weeks duration). The topic of the internship needs to be permitted by the module coordinator.	
Examination: Internship reportin English (max. 25 pages) **Examination prerequisites:** Completion of an internship for at least 12 weeks in a full-time position; Handing in an original letter of the internship organization confirming the completion of the internship including duration, time, place and tasks.	30 C

Examination requirements: The students have worked successfully in a conservation project of own choice. They achieved the knowledge neccessary to assist in this project, and they are able to present data and results. They did not only learn to analyze their own data but also to evaluate the whole project in contemporary standards of conservation work.	

Admission requirements: none	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. rer. nat. Matthias Waltert
Course frequency: each semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 2 - 3
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Modul M.INC.ECOL.608: Research Methods in Ecology** *English title: Research Methods in Ecology*	10 C 13 SWS

Lernziele/Kompetenzen: On completion of this course, students should be able to: Explain and use basic biometric techniques Develop a client-based research project structured using the principles of scientific method Communicate research findings to clients and peers using effective written and oral presentation styles Discuss the theory of research programme development and evaluation. Construct a scientific blog entry Discuss the philosophy of biology Obtain information from library databases **Topics** · Science method · Communicating science · Statistical methods · Science and Maori · Science and the public · Science and ethics · Grant writing	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: 1. Web of Science report	
Prüfung: Written report (max 4 p) and Oral presentation (ca 10 min) and Written assignment (max 3 p) and Electronic file prepared (max 1 p) and Written assignment and analyses (max 10 p)	10 C

Lehrveranstaltung: 2. Practical course: Research Methods in Ecology	
Prüfung: Oral presentation (ca 10 min)	

Lehrveranstaltung: 3. Practical course: Preparing Grant Application	
Prüfung: Written assignment (max 3 p)	

Lehrveranstaltung: 4. Blog article	
Prüfung: Electronic file prepared (max 1 p)	

Lehrveranstaltung: 5. Statistics report	
Prüfung: Written assignment and analyses (max 10 p)	

Prüfungsanforderungen: There is no exam for this course	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Adrian Paterson
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ECOL.609: Conservation Biology** *English title: Conservation Biology*	10 C 13 SWS

Lernziele/Kompetenzen: An advanced study of the ecological, genetic and biogeographical principles underlying conservation biology and their application to conservation management issues. Conservation Biology aims to provide students with an understanding of the ecological principles of conservation biology and nature conservation, and the application of these principles to conservation management. This is achieved by the production of a scientific paper, a popular article and scientific reviews and discussions of conservation issues.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: 1. Seminar: Conservation Biology (Seminar)	2 SWS
Prüfung: Presentation (ca 20 min) and Scientific paper (max 15-20 p) and Popular article (max 10 p)	10 C

Lehrveranstaltung: 2. Practical course: Production of a scientific paper	3 SWS
Prüfung: Scientific paper (max 15-20 p)	4 C

Lehrveranstaltung: 3. Practical course: Production of a popular article	3 SWS
Prüfung: Popular article (max 10 p)	4 C

Prüfungsanforderungen: Students have the opportunity to analyze scientific data and write a scientific journal article and also practice writing for the “public” by preparing a “popular article” for a newspaper or magazine. Critiquing skills are also taught by reviewing scientific journal articles.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Dr. G. Stewart
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ECOL.612: Wildlife Management** *English title: Wildlife Management*	10 C 13 SWS

Lernziele/Kompetenzen: Study of the principles and techniques involved in the manipulation of populations, habitats and people in order to manage wild animal populations. Detailed investigations of selected case studies. Wildlife management involves conservation of threatened species, control of unwanted pests, and sustainable use of harvested species. This course traverses these three topics through weekly 2-hour seminar discussions of selected New Zealand and international wildlife case studies. The biology of various wildlife species is considered, together with the social, political and economic factors that influence their management.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: 1. Seminar: Wildlife Management (Seminar)	2 SWS

Lehrveranstaltung: 2. Practical course: Wildlife Management	4 SWS
Prüfung: Written exam (180 min)	6 C

Prüfungsanforderungen: During the course students are required to present four selected scientific papers to the other students in the class. During these presentations students learn what is required when writing scientific papers (i.e. presentation of results) and this leads onto the Final Exam where students are required to convert a research report in a document suitable for publication in an international journal.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Dr. James Ross
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ECOL.631: Animal Behaviour** *English title: Animal Behaviour*	10 C 13 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
This course prepares students for advanced study of the behaviour of animals. The course provides an understanding of the role that behaviour plays in the life histories and evolution of birds. On completion of this course you should understand how to measure behaviour, the evolution of behaviour, communication, learning aversions, and its origin and present functions, and implications of optimality models. Students should have a strong interest in animal behaviour (including human behaviour), the scientific method and field work.	Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture *Inhalte*: Topics • Behavioural methodology • Optimality • Levels of analysis • Bird vocalisations • Learning aversion • Behaviour and conservation • Comparative approaches • Communication.	2 SWS
Prüfung: Written summary of a recent research paper **Prüfungsanforderungen:** Required tasks for exams: Take home exam – preparation of written summary of a current research paper. After attending this course, the students are able to critically discuss current research on: breedingstrategies and helping behaviour, handicap principle of communication, optimality theory, learning aversions, vocalisations of birds, the comparative approach to behaviour, the methodological and logistical requirements of behavioural fieldwork, the use of applied behaviour, in addition they will obtain experience in: communicating ideas on behaviour, observing behaviours, using relevant tools for recording and analysing behaviour.	10 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Adrian Paterson
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl:	

10	

Georg-August-Universität Göttingen **Modul M.INC.ECON.615: Applied Research Methods** *English title: Applied Research Methods*	10 C 13 SWS

Lernziele/Kompetenzen: Applied research is of interest to academics and practitioners alike. It involves looking at organisations and their activities from the viewpoint of any or, indeed, all of the stakeholders. It can be conducted in both commercial enterprises and non-profit organisations. The purpose of this course is to develop effective research skills in graduate students in commerce. The course examines the analytical procedures that underlie the methods researchers use to acquire, verify and validate data and information in applied research. Emphasis throughout the course is placed on understanding the necessary research concepts and procedures (not recipes). Special attention is given to the application of statistical procedures and techniques using actual data. This entails learning how to use a computer package, interpret the output and take decisions in view of the results. **Topics** - Part I. Introduction and scientific approach to research - Part II. Design of research - Part III. Qualitative versus quantitative business research - Part IV. Analysis of data - Part V. Research reporting	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: 1. Lecture: Applied Research methods	2 SWS
Prüfung: Written exam and Oral presentation (ca 20 min)	10 C

Lehrveranstaltung: 2. Practical course: Applied Research methods	3 SWS
Prüfung: Oral presentation (ca 20 min)	4 C

Prüfungsanforderungen: It is expected that, at the end of the course, students will have substantive knowledge on data analysis, statistical techniques, result interpretation and report writing skills to successfully pass the mid term and final exams	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Christopher Gan
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3

Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.601: Advanced Theory in Resource Studies** *English title: Advanced Theory in Resource Studies*	10 C 13 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
Resource studies' encompasses a wide range of disciplines or knowledge areas such as ecology, economics, land and water management, resource management, plant protection, M?ori studies, forestry, political science, sociology, planning, human ecology, environmental education, community development and cultural studies. There is no single theory for resource studies, and no unified 'advanced theory'; it is more useful to talk of an 'interdisciplinary framework' which mediates between disciplines or fields such as those mentioned above. However, the pursuit of an interdisciplinary framework by necessity places social practices more in the foreground. The more one tries to understand different disciplinary approaches and traditions, the more this requires either direct or indirect interactions between people, who are ultimately the transmitters of these forms of knowledge. The emphasis in this subject is less on the theory methodology of the pure or applied sciences that inform resource studies, although this is due given scrutiny. Instead, the focus in this course is more on sociologically-related perspectives that can help us to understand why resources are defined, shared, allocated and otherwise contested in the ways that they presently appear to us. A co-teaching/learning, discussion-based approach underscores this course. A number of thematic lectures will be presented by the examiner, some by other staff contributors, and there will be occasions when joint presentations/ discussions are presented by staff and examiner. Field trips and subsequent role play exercises form an important element of the teaching style.	Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: 1. Lecture: Advanced Theory in Resource Studies	
Prüfung: Readings analysis, theory review assignment and Written assignment, oral presentation (ca 45 min) and Written paper, oral presentation (ca 45 min)	10 C

Lehrveranstaltung: 2. Seminar: Advanced Theory in Resource Studies (Seminar)	
Prüfung: Written assignment, oral presentation (ca 45 min)	

Lehrveranstaltung: 3. Practical Course: Advanced Theory in Resource Studies	
Prüfung: Written paper, oral presentation (ca 45 min)	

Prüfungsanforderungen: Students need to be able to critically evaluate the knowledge and authority claims of various parties to environmental management decision-making contexts as reflected in pieces of written text and/or evidence	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache:	**Modulverantwortliche[r]:**

Englisch	Roy Montgomery
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.606: Advanced Geographic Information Systems A** *English title: Advanced Geographic Information Systems A*	10 C 13 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
ERST 606 examines Geographic Information Systems in the modelling and analysis of spatial problems. It looks at data quality and collection issues, and techniques of spatial analysis for both the raster and vector models emphasising natural resource based applications. The aim of ERST 606 is to introduce students to the advanced capabilities and limitations of geographic information systems with a special emphasis on resource analysis and including the technologies of remote sensing and GPS. Topics · Introduction/What is GIS? · Maps and Cartography · Spatial Thinking · Data Issues · Vector GIS · Vector Topology · Spatial Analysis · Aerial photos as basemaps · Raster GIS · Boolean Operation · Combining Overlays · DEMs/Neighbourhood Analysis · Viewshed Analysis · GPS and GIS · Remote Sensing and GIS.	Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture *Angebotshäufigkeit:* jährlich	

Prüfung: Vector Project Report (25 %), Raster Project Report (25 %), Independent Project Report (40 %), Project Presentation (10 %)	10 C

Prüfungsanforderungen: On successful completion of the subject, the student will be able to: 1. Distinguish between raster and vector data models in GIS	

2. Critically select available spatial analysis techniques to the raster and vector models and justify their use 3. Critically apply data quality principles to GIS analysis 4. Demonstrate proficiency with ArcGIS software through successful analysis and map production	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Alle Crile Doscher
Angebotshäufigkeit: 1	**Dauer:**
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.607: Advanced Geographic Information Systems B** *English title: Advanced Geographic Information Systems B*	10 C 13 SWS

Lernziele/Kompetenzen: Advanced use of GIS and spatial analysis tools for resource applications, problem-solving, decision-making and planning for environmental issues and sustainable management of natural resources. The aim is to train students in the critical analysis of GIS-based problems, the abdvanced use if GIS, including spation alalysis, modeling and mapping the integration if GIS and GPS and Remote Sensing the professional communication of GIS concepts, methods and results.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture	

Prüfung: Assignment 1 (10%), Individual project proposal (15%), Assignment 2 (10%), Assignment 3 (10%), Individual project report (20%), Individual project presentation (5%), student-led class lecture (30%)	10 C

Prüfungsanforderungen: After successfully completing this course the students will be able to: 1. Understand, discuss and critically evaluate core GIS data management, spatial analysis, and spatial modeling concepts and tool 2. Understand and discuss basic concepts and methods in Remote Sensing and Geographic Positioning systems 3. Understand and discuss basic concepts related to cartography and mapping 4. Discuss the relevance of GIS and spatial sciences for solving real-world-problems	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Alle Crile Doscher
Angebotshäufigkeit: jährlich1	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.620: Advanced Environmental Management Systems** *English title: Advanced Environmental Management Systems*	10 C 13 SWS

Lernziele/Kompetenzen: Businesses and associated organisations contribute to a wide range of major environmental problems. Regulation has to date had limited success in reversing some of the major adverse environmental trends. Increasingly businesses are using a wide range of voluntary approaches to accepting their own responsibility for these problems. In this paper we look at the basis of environmental management systems, contexts for development and application, types, uses and limitations of EMS and applications of EMS in New Zealand and elsewhere.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture *Inhalte*: **Section 1: The Big Picture – organisations and the environment** • Global environmental changes • Impacts on business and other organisations • Organisational responses. **Section 2: Implementing environmental management systems** • Setting directions • Taking stock – where are you at now? • Risk assessment and management • Where to and how? **Section 3: The organisation and the community** · Managing stakeholder relationships **Section 4: The government response: Carrots and Sticks** • The government toolkit • NZ Environmental legislation. **Section 5: The future** Sustainable environmental management in the 21st century. *Angebotshäufigkeit:* jedes Wintersemester	

Prüfung: Individual assignments (reports & presentations) (60 %), Major Group Project (30 %), Participation and Feedback (10%)	10 C

Prüfungsanforderungen: To give students the knowledge , skills and critical appraisal tob e able to contextualise and apply EMS to any organisation within variety of management and policy contexts. This course examines a wide range of types of EMS, from sector specific EMS focused in a few aspects of environmental impact, to broader approaches aimed at creating	

sustainable organisations, and will include assessing why they are needed, what they achieve and how to get buy-in.	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Lin Roberts
Angebotshäufigkeit: jährlich1	**Dauer:**
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.630: Environmental Policy and Planning** *English title: Environmental Policy and Planning*	10 C 13 SWS

Lernziele/Kompetenzen: Learning goals / skills: History of policy analysis and planning; theoretical perspectives on policy and planning and their application to environmental policy and planning; issues in environmental policy analysis. The subject aims: • To advance knowledge and understanding of concepts, perspectives and theories in the fields of public policy and environmental policy and planning • To advance knowledge and understanding of important issues in the development of environmental policy and planning • To advance knowledge and understanding of environmental policy and planning processes and institutions in New Zealand	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture	

Prüfung: Essay I, Essay II, Final Exam	10 C

Prüfungsanforderungen: After successful completion of this subject, students should be able to: • Identify, explain and critique a variety of concepts, perspectives and theories in the fields of public policy and environmental policy and planning • Identify and discuss important issues in the development of environmental policy and planning, including the role of science/experts, public participation, and issues related to strategic policy and planning • Describe and assess critically institutions and processes relevant to the development of environmental policy and planning in New Zealand	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Alle Ton Buhrs
Angebotshäufigkeit: jährlich1	**Dauer:**
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.632: Economics in Environmental Policy** *English title: Economics in Environmental Policy*	10 C 13 SWS

Lernziele/Kompetenzen: **Prescription:** Economic models of environmental decisions. Applied cost-benefit analysis. Economic analysis of policy instruments. Co-dependency of economics, ecology, and human behaviour. **Aim:** This subject aims to develop the ability to apply economic analysis to: • Identify efficient resource use • Model dynamic interactions between economic, natural and social • aspects of the environment • Aid in the development of environmental policy instruments • Critically evaluate environmental policies	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture	
Prüfung: Assignments & Projects, Final Exam	10 C

Prüfungsanforderungen: After successful completion of this subject participants will be able to: · Design, analyse and evaluate cost-benefit analyses · Develop theoretical bio-economic models · Develop simple computer based applications of bio-economic · models · Use models to identify the implications of alternative environmental · policies	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Alle Geoffrey Kerr
Angebotshäufigkeit: jährlich1	**Dauer:**
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.633: Integrated Environmental Management (IEM)** *English title: Integrated Environmental Management (IEM)*	10 C 13 SWS

Lernziele/Kompetenzen: **Prescription:** Problem definition and the analysis of environmental management issues from a variety of perspectives, and the development of applied integrated environmental management strategies, from an interdisciplinary basis. The general flow of course development is as follows: - introduction to the theory and practice of IEM, including presentation of several best practice case studies; - ongoing keynote sessions dealing with particular aspects of IEM; - specific team work skill development sessions; - case studies which apply the principles to increasingly complex issues, with a view to identifying IEM improvements; - assignments, both individual and group, which will be based around the case studies and general IEM application; - increasing expectations on students to undertake the work. **AIMS:** To produce graduates capable of using interdisciplinarity to develop and implement an Integrated Environmental Management (IEM) approach to a variety of resource management problems.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture	
Prüfung: Assignment, Group Case Study Report, Journal completion	10 C

Prüfungsanforderungen: At the end of the course, students should be able to: • critically analyse an environmental management/policy problem, issue or set of issues, from an interdisciplinary perspective which incorporates theories, approaches, and methods relevant to IEM; • develop a framework within which the problem, issue or set of issues can be identified; • identify a range of options for resolving the problem(s); • identify the key process steps which will lead to improved environmental management; • show how various discipline approaches, when integrated, can contribute to better decision making; • identify the conditions for working effectively in an inter-disciplinary team, or for promoting effective processes or outcomes; and • communicate effectively within a wide variety of circumstances, in written and oral fashions.	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Alle Ken Hughey
Angebotshäufigkeit: jährlich1	**Dauer:**
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.ERST.636: Aspects of Sustainability: an international perspective** *English title: Aspects of Sustainability: an international perspective*	10 C 13 SWS

Lernziele/Kompetenzen: The subject is taught in an interactive and discursive way from a range of discipline perspectives, covering the philosophy and history of sustainability, 'conventional' and organic agriculture, tourism, urban sustainability, economics of sustainability (including the concept of a country's 'Ecological Footprint') etc. At the end of the course students should be able to: * explain and criticise the key theories and concepts in sustainability * analyse one selected sector of topic and produce a detailed critique of the extent to which it is currently sustainable (sector) or logically argued * be able to report orally in a seminar, and in a written report * have an understanding of the range of international laws, agreements, conventions, and leading international and national organisations working towards sustainable development and resource conservation.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Seminar: Aspects of Sustainability (Seminar)	

Prüfung: Written exam (180 min)	10 C

Prüfungsanforderungen: 1. Critical analysis of the concept of sustainability in both national and international contexts 2. active and facilitated comparison, analysis, synthesis and evaluation of sustainability issues 3. international context: international approaches to conservation and to sustainable and equitable use of natural resources; international laws, multilateral agreements, conventions and organisations	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. I.F. Spellerberg
Angebotshäufigkeit: jährlich	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.MGMT.611: Management Research Methods** *English title: Management Research Methods*	10 C 13 SWS

Lernziele/Kompetenzen: **Prescription:** Management research methods with an emphasis on applications in primary production, independent research into problems. **Aims:** To introduce postgraduate students with a desire to carry out research in farm, horticultural or viticulture management, or international rural development, to the research process and the range of research methods available to researchers. It is not intended that this course will provide any participant with all they need to know on any specific research technique. For that they are recommended to take the postgraduate paper dealing with that specific methodology. Further, it is intended to bring together all the students starting research in the Ag Management Department to establish a peer group which will be aware of a range of research projects, approaches and methods, not just their own. The ultimate outcome of the course will be a viable research proposal for each student. It is also desired to build up an *esprit de corps* among the class which encourages class members to help and support each other during what is often a very lonely and difficult period while producing the dissertation or thesis required for their degree.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture	
Prüfung: Subject Journal	10 C

Prüfungsanforderungen: By the completion of MGMT 611 class members will have: 1. Encountered a range of research methodologies and techniques, and their advantages and disadvantages, which will permit selection of an appropriate research strategy for a specific research question. 2. Prepared a viable research proposal to meet the requirements of the programme that each individual class member is taking. 3. Presented to their colleagues and staff a seminar embodying the research proposal to facilitate a rigorous critique before the actual research commences, with the objective of improving the proposed research. 4. Developed a sound grasp of ethical research procedures and practice. 5. Been introduced to the issues likely to be encountered in cross¿cultural research.	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Rupert Tipples
Angebotshäufigkeit: jährlich1	**Dauer:**

Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.MGMT.615: Planning and Assessing International Development Projects** *English title: Planning and Assessing International Development Projects*	10 C 13 SWS

Lernziele/Kompetenzen: **Prescription:** An applied course critically investigating the range of mechanisms by which international rural development assistance is delivered. Identification, preparation, design and planning of development interventions. Factors influencing the sustainability and success of rural development assistance. **Aims:** To introduce and critically analyse concepts and techniques used in the identification, planning and design of rural development assistance. It is intended that students will gain a theoretical understanding of why projects and programmes are used as a mechanism for the delivery of rural development. They will also gain practical skills in the planning and design of development assistance.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture	
Prüfung: Assignment 1 (20%), Assignment 2 (20%), Assignment 3 (60%)	10 C

Prüfungsanforderungen: On completion of MGMT 615, students will have: 1. An understanding of approaches used to deliver development assistance. 2. Used the ‘Project Cycle’ to illustrate the various phases of development projects. 3. Examined and critically appraised the identification, design and review phases of development projects. 4. Considered a range of techniques used in the design of rural development projects. 5. Been introduced to the process of financial and economic appraisal of development projects. 6. An introduction to methods used in implementing and managing development projects. 7. Considered different approaches, data and methods used to monitor and evaluate rural development projects. 8. Used the Statistical Package for Social Sciences (SPSS) to analyse quantitative and qualitative information gathered in a household survey.	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Michael Lyne
Angebotshäufigkeit: jährlich1	**Dauer:**
Wiederholbarkeit:	**Empfohlenes Fachsemester:**

zweimalig	1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.RECN.626: Natural Resource Recreation & Tourism** *English title: Natural Resource Recreation & Tourism*	10 C 13 SWS

Lernziele/Kompetenzen:	**Arbeitsaufwand:**
Natural and resource-based recreation refers to recreation that occurs in environments that are, to a large extent, unmodified by humans. This includes recreation and tourism in physical settings (such as mountains, rivers, and lakes and along coastlines) where reliance on built environments is minimised. Natural resource recreationists and tourists pursue activities in a range of management settings too, including national parks and reserves, and regional or peri-urban park areas. RECN 626 aims to facilitate advanced study of the theoretical, philosophical and applied issues relating to recreation and tourism in nature-based settings. The course enables students to explore the sociological, geographical, and psychological dimensions of natural resource recreation participation and management, including issues of equity in opportunity provision, experiential aspects of participation, the influence of values, relationships with land and place, balancing preservation and use, commercial uses of protected natural areas, and understanding visitor behaviour. Natural Resource Recreation and Tourism is an extension of courses offered at the undergraduate level (especially RECN 341 Recreation and Tourism in Protected Areas, RECN 215 Recreation, Sport and Adventure in Outdoor Environments, and RECN 209 Nature and Heritage Interpretation), and helps prepare students for professional careers within recreation and tourism management, policy and planning.	Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture	
Inhalte: Topics · Introduction to natural resource recreation and tourism: the estate and the dilemma · The history and development of New Zealand's Protected Areas · The natural resource recreationists: sociological and social demographic dimensions · The natural resource recreationists: experiential dimensions · Impacts of natural resource recreation (bio-physical and social) · Management of natural heritage: assumptions, values and practice · Managing visitor safety: moral and legal responsibilities for natural resource recreation and tourism · Risk and responsibility in natural resource recreation and tourism · Understanding visitor behaviour in natural resource settings: communication, persuasion and modification. *Angebotshäufigkeit:* jedes Wintersemester	

Prüfung: Short Essay, Journal Article	10 C

Prüfungsanforderungen: Through their study of this subject, students should develop the ability to: · situate New Zealand's protected areas system within an historical context, and understand its significance for conservation, recreation and tourism · provide a critical overview of the characteristics of natural resource recreationists, the expectations of nature¿based tourists, and their impacts on the resource estate; · analyse natural resource recreation in terms of ethnicity, culture, history, personal values, and experiential dimensions of recreation; · understand and appraise strategies for addressing conflict arising from management of natural resource recreation and tourism; · identify and critically discuss the range of current visitor management issues affecting participation in and management of natural resource recreation and tourism; · examine the unique challenges of effective communication with visitors to natural resource settings, including knowledge of the theory and strategies associated with modifying visitor behaviour; and · critically appraise management practice, theoretical frameworks, and research findings within the context of natural resource recreation and tourism.	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** Stephen Espiner
Angebotshäufigkeit: jährlich1	**Dauer:**
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.SOCI.601: Social Science Research Methods (Quantitative)** *English title: Social Science Research Methods (Quantitative)*	10 C 13 SWS

Lernziele/Kompetenzen: The primary objective of this course is to have the student gain competence in conducting a statistical social science research study. Students will learn about the abilities necessary to design, implement, analyse, and critically discuss quantitative research up to the level of univariate (parametric and non-parametric) analysis. These abilities will be acquired and sharpened in a 'hands-on' manner throughout the semester. The main workload for this class comes from the semester-long, empirical study undertaken by each student. The topic for this project is up to the each student but must be approved by the examiner of the paper; the topic must also have a social science component (i.e., it must involve people as respondents or research subjects). The studies may be pilot projects for intended thesis work, but they may not be a replication of work undertaken for other current or past classes. A key component in research is the presentation of results to the 'wider world'. To this end, each student will be required to orally present the results of his or her study during an in-class conference, which is held at the end of the semester. Each student will also be required to write up her or his study in journal article form. Topics • Planning research • Literature reviews • Ethics in social science research • Data files; data transformation • Modes of observation • Probabilities and frequencies • Instruments • Descriptive statistics and graphs • Sampling • Causation, validity, and correlation • General linear model tests • Nonparametric tests • Professional writin • Presenting results 'live'	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: 1. Lecture: Social Science Research Methods (Quantitative)	3 SWS
Prüfung: Written Exam and Written assignment (max 15-20 p)	10 C

Lehrveranstaltung: 2. Seminar: Social Science Research Methods (Quantitative) (Seminar)	4 SWS
Prüfung: Written assignment (max 15-20 p)	6 C

Prüfungsanforderungen: Because this course does not have a final examination, there are no required tasks. However, in order to complete the mandatory research project, students will need to provide a research plan, obtain ethical approval for the research project, conduct the project and then present it in two formats (a conference presentation and a draft journal article).	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Gary Steel
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Modul M.INC.SOCI.602: Social Science Research Methods (Qualitative)** *English title: Social Science Research Methods (Qualitative)*	10 C 13 SWS

Lernziele/Kompetenzen: The course will allow the student to examine critically and engage in a variety of qualitative methods of data collection and analysis used to conduct social research. You will learn these methods by doing a field study of one group or setting for the duration of the subject. We shall focus on the theory and techniques of intensive interviewing and participant observation by discussing students' field notes in class, doing exercises in class, reading and discussing literature on qualitative methodology, and examining exemplars of qualitative research. In addition, we shall discuss the process of writing a social scientific report based on qualitative research. Anyone wishing to use qualitative social research methods in his or her thesis research should take this subject. Prescription: A study of the theory and practice of qualitative social scientific research. Special attention will be given to the theory and practice of participant observation, intensive interviewing, life histories, and document analysis.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: 1. Lecture: Social Science Research Methods (Qualitative)	3 SWS
Prüfung: Oral exam (ca 45 min) or written exam (180 min) and Written Essay (max 15-20 p)	10 C

Lehrveranstaltung: 2. Seminar: Social Science Research Methods (Qualitative) (Seminar)	4 SWS
Prüfung: Written Essay (max 15-20 p)	6 C

Prüfungsanforderungen: · Theory and practice of qualitative social scientific research · theory and practice of participant observation · intensive interviewing · life histories · document analysis	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** L. Hunt
Angebotshäufigkeit: jedes Wintersemester	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl:	

10	

Georg-August-Universität Göttingen **Modul M.INC.TOUR.603: Tourism Management** *English title: Tourism Management*	10 C 13 SWS

Lernziele/Kompetenzen: **Prescription:** This course first examines the need for, and scope of, tourism planning and management. Particular attention is paid to the nature of tourism 'products', and market systems failure, which indicate management interventions. Because tourism destinations evolve over time, particular analysis is undertaken on economic, environmental and socio-cultural models and processes of change. Various methods and models for tourism planning are then set against this systems based context. These are evaluated for their strengths and weakness, scale of application and relevance for developed or developing economies. Within the course scope exists for the presentation of individual topics of interest such as sustainable tourism, eco-tourism, cultural and alternative tourism, or other specialised forms of tourism.	**Arbeitsaufwand:** Präsenzzeit: 182 Stunden Selbststudium: 118 Stunden

Lehrveranstaltung: Lecture *Inhalte*: • Tourism Systems and Planning Imperatives • The evolution of tourism planning thought • Marketing, economic planning or resource management • The need for and scope of Tourism Planning • Assessing Tourism's Impacts: processes of change • Economic impacts • Physical impacts • Socio-cultural impacts • Methods and models for Tourism Planning • Marketing Perspectives • Public participation and community based approaches • Land-Use approaches (including GIS) • Tourism and Development • Sustainable Tourism Development	

Prüfung: Essay, Presentation, Formal Paper, Final Exam	10 C

Prüfungsanforderungen: As a result of their exposure to lecture, reading and assignment material students will be able to: 1. Explain the nature of tourism systems and their requirements for integrated planning. 2. Describe the major forces that impel evolution of tourism destination areas and understand models that describe their evolution. 3. Relate visitor, industry and destination resource characteristics to tourism management models.	

4. Critique in detail, various views about, and options for, sustainable tourism development. 5. Present written reports on contemporary tourism issues as potential tourism researchers, advisors or business operators.	

Zugangsvoraussetzungen: none	**Empfohlene Vorkenntnisse:** none
Sprache: Englisch	**Modulverantwortliche[r]:** David Simmons
Angebotshäufigkeit: jährlich1	**Dauer:**
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:** 1 - 3
Maximale Studierendenzahl: 10	

Georg-August-Universität Göttingen **Module M.INC.TOUR.604: Tourist Behaviour**	10 C 13 WLH

Learning outcome, core skills:	**Workload:**
An advanced study of human behaviour and its management in relation to tourism. The cross-cultural nature of international tourism. An evaluation of the methods used to manage tourist behaviour. Students will be able to apply a diverse range of theoretical approaches to tourist behaviour and the management of that behaviour. They will understand fundamental concepts of tourist behaviour and be able to critically discuss the behavioural, social and economic nature of tourism.	Attendance time: 182 h Self-study time: 118 h

Course: Tourist Behaviour (Lecture)	
Course: Tourist Behaviour (Exercise)	

Examination: Assignment (max. 5000 words)	10 C

Examination requirements:	
Students are required to submit a term paper designed to be a first draft of a journal article. The best/most suitable papers will be prepared for submission to a tourism journal. Students select a topic of their choice and apply an existing theory of human behaviour to a tourism context. During the course they give two presentations to the class and write these up as literature reviews. At the end of the semester they give a public, conference style, presentation on their topic. Marks are awarded for presentations and all written work.	

Admission requirements:	**Recommended previous knowledge:**
None but students are expected to attend a workshop on writing a literature review organized by the LU Library Teaching and Learning sevices.	none
Language: English	**Person responsible for module:** Dr. David Fisher
Course frequency: Lincoln semester II	**Duration:** 1 semester[s]
Number of repeat examinations permitted: none	**Recommended semester:** 2 - 3
Maximum number of students: 10	

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Modul M.SIA.A11: Tropical animal husbandry systems** *English title: Tropical animal husbandry systems*	6 C 4 SWS

Lernziele/Kompetenzen: Students are able to: understand the impact of the natural and economic environment on the evolution of different types of husbandry systems as well as on their orientation and intensity of production; gain understanding for parameters that have to be considered when aiming at the improvement of livestock husbandry systems within a given framework; individually analyse and present a specific tropical livestock production system.	**Arbeitsaufwand:** Präsenzzeit: 60 Stunden Selbststudium: 120 Stunden

Lehrveranstaltung: Tropical animal husbandry systems (Vorlesung, Seminar) *Inhalte*: This module provides an extensive overview on the different forms of animal husbandry systems in developing and transformation countries of Africa, Asia and Latin America, ranging from camel nomadism in deserts to beef ranching and intensive dairying in tropical highlands. The system-specific strategies of livestock management are analysed in view of their ecological and economic sustainability. The (potential) interactions of livestock with other components of the farming system are explored, thereby differentiating between market and subsistence oriented systems. The role of additional factors influencing livestock production systems such as cultural, social, economical and political frame conditions are discussed. Delgado, C., Rosegrant, M., Steinfeld, H., Ehui, S., Courbois, C. 1999: Livestock to 2020. The next food revolution. FAO Discussion Paper 28, FAO Rome, Italy; Devendra, C., Thomas, D., Jabbar, M.A. and Zerbini, E., 2000: Improvement of Livestock Production in Crop-Animal Systems in Agro-ecological Zones of South Asia. ILRI, Nairobi, Kenya; Falvey, L., Chantalakhana, C. (eds) 1999: Smallholder Dairying in the Tropics. ILRI, Nairobi, Kenya	4 SWS
Prüfung: Klausur (90 Minuten, Gewicht: 75%) und Präsentation, Referat oder Korreferat (ca. 15 Minuten, Gewicht: 25%) **Prüfungsanforderungen:** abiotic and biotic conditions of animal husbandry in the (sub-)Tropics; characteristics, opportunities/constraints of pastoral, agro-pastoral, silvo-pastoral, aquatic, industrial and urban systems; species-specific management and production (cattle, sheep, goat, camel, yak, pig, poultry).	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** Basic knowledge (B.Sc. level) of plant and animal sciences or agricultural economics

Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. Eva Schlecht
Angebotshäufigkeit: jedes Wintersemester; Göttingen	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Bemerkungen:

Literature:

Delgado, C., Rosegrant, M., Steinfeld, H., Ehui, S., Courbois, C. 1999: Livestock to 2020. The next food revolution. FAO Discussion Paper 28, FAO Rome, Italy; Devendra, C., Thomas, D., Jabbar, M.A. and Zerbini, E., 2000: Improvement of Livestock Production in Crop-Animal Systems in Agro-ecological Zones of South Asia. ILRI, Nairobi, Kenya; Falvey, L., Chantalakhana, C. (eds) 1999: Smallholder Dairying in the Tropics. ILRI, Nairobi, Kenya

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Module M.SIA.E11: Socioeconomics of rural development and food security**	6 C 4 WLH

Learning outcome, core skills: Students learn concepts of development and problem-oriented thinking in a development policy context. The identification of interdisciplinary linkages is trained. Building on case-study analyses, course participants can pinpoint appropriate economic and social policies and assess their impacts. These qualifications can also be transferred to unfamiliar situations.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Socioeconomics of rural development and food security (Lecture) *Contents*: This module provides students with an overview of socioeconomic aspects of hunger and poverty in developing countries. Apart from more conceptual issues and development theories, policy strategies for rural development and poverty alleviation are discussed and analyzed. Special emphasis is put on problems in the small farm sector. Numerous empirical examples are used to illustrate the main topics.	4 WLH
Examination: Written examination (90 minutes) **Examination requirements:** Concepts and measurement of hunger and poverty; development theory; classification and evaluation of rural development policies	6 C

Admission requirements: none	**Recommended previous knowledge:** Prior knowledge of microeconomics at the BSc level is useful
Language: English	**Person responsible for module:** Prof. Dr. Matin Qaim
Course frequency: each winter semester; Göttingen	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:**
Maximum number of students: 120	

Additional notes and regulations:

Literature:

Text books, research articles and lecture notes.

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Module M.SIA.E12M: Quantitative research methods in rural development economics**	6 C 4 WLH

Learning outcome, core skills: Students are familiar with empirical, quantitative methods in rural development economics. Thus, they are able to develop and implement their own research projects.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Quantitative research methods in rural development economics (Lecture) *Contents*: This module teaches and trains methodological skills for the analysis of micro data in rural development economics. In particular, farm and household level data are used. Apart from statistical and econometric techniques, approaches of primary data collection are covered (questionnaire development, survey sampling design). These methods are used for concrete examples in the computer lab.	4 WLH
Examination: Written examination (90 minutes) **Examination requirements:** Use and interpretation of descriptive statistics and standard econometric methods; hypothesis testing; data management; sampling design.	6 C

Admission requirements: Familiarity with the contents of the module "Socioeconomics of Rural Development and Food Security" is assumed.	**Recommended previous knowledge:** none
Language: English	**Person responsible for module:** Prof. Dr. Matin Qaim
Course frequency: each summer semester; Göttingen	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:**
Maximum number of students: 40	

Additional notes and regulations:

Literature:

Text books, research articles and lecture notes.

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Module M.SIA.E14: Evaluation of rural development projects and policies**	6 C 4 WLH

Learning outcome, core skills: Students understand the standard methods in the economic analysis and evaluation of development projects and policies. They are able to design and perform cost-benefit analysis as well as project evaluations independently.	**Workload:** Attendance time: 40 h Self-study time: 140 h

Course: Evaluation of rural development projects and policies (Lecture) *Contents*: This module teaches standard methods in the economic analysis and evaluation of development projects and policies. It covers the economic and financial assessment of rural development projects (in particular cost-benefit analysis), as well as experimental and quasi-experimental impact evaluation methods. These methods are illustrated with examples and students learn to apply these methods in different exercises.	4 WLH
Examination: Written exam (90 minutes, 70%) and homework (max. 10 pages, 30%) **Examination requirements:** Cost-benefit analysis; impact evaluation	6 C

Admission requirements: none	**Recommended previous knowledge:** Knowledge of the content of the module "Socioeconomics of Rural Development and Food Security" and "Econometrics I" is required.
Language: English	**Person responsible for module:** Prof. Dr. Matin Qaim
Course frequency: each summer semester; Göttingen	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:**
Maximum number of students: 45	

Additional notes and regulations:

Literature:

Text books, research articles and lecture notes.

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Modul M.SIA.E24: Topics in Rural Development Economics I** *English title: Topics in rural development economics I*	6 C 4 SWS

Lernziele/Kompetenzen: The objective of this course is to acquaint Master students with the reading and understanding of scientific journal articles on relevant topics of rural development economics. Student should learn how to develop a scientific research question, choose appropriate research methods and strucutre a scientific article.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Topics in Rural Development Economics I (Vorlesung) *Inhalte*: This course will provide Master Students with an overview of relevant topics in rural development economics, which will also enable them to develop own research questions and study approaches in this field. The module is structured as a reading course, building on selected articles from relevant international journals. Students are required to read announced articles before the classroom sessions, in order to enable a critical debate in class. The articles selected for the course are clustered around key topics relevant to rural development economics, such as listed below. Tentative Topics 1. The food system transformation and smallholder farmers 2. Rural livelihood strategies and income diversification 3. Adoption and impact of modern agricultural technology 4. Economics of nutrition and health 5. Gender and intra-household resource allocation Master students will have to write a summary of a selected journal article. Furthermore, the course should enable them to develop own research questions and study approaches in the field of rural development economics.	4 SWS
Prüfung: Präsentation, Referat oder Korreferat (ca. 10 Minuten, Gewichtung: 40%) und Hausarbeit (max. 4 Seiten, Gewichtung: 60%) **Prüfungsanforderungen:** Constructive participation in the discussion during the lectures, which requires the reading of the articles indicated. In both the written and the oral assignments, students are supposed to demonstrate that they are able to identify the most relevant aspects of the articles and to critically evaluate the research questions, the methods and the results of the studies.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. Meike Wollni
Angebotshäufigkeit:	**Dauer:**

jedes Sommersemester; Göttingen	1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Bemerkungen:
Literature:

Selected articles from academic journals and book chapters

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Modul M.SIA.I12: Sustainable International Agriculture: basic principles and approaches** *English title: Sustainable international agriculture: basic principles and approaches*	6 C 4 SWS

Lernziele/Kompetenzen: Students • are able to describe the main bio-physical and socio-economic drivers shaping agricultural production systems and land and resource use strategies; • have knowledge of relevant ecological, economic and social indicators • can describe and apply integrated approaches of indicator use for the evaluation of a system's sustainability	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Sustainable International Agriculture: basic principles and approaches (Vorlesung) *Inhalte*: In view of global change spanning from population growth, migration, and urbanization to climate change, land degradation and water scarcity, the sustainable use of human and natural resources for the continued provision of quantitatively and qualitatively adequate food poses a major challenge to all stakeholders involved in agricultural production worldwide. This module therefore addresses the basic concepts and principles of sustainability and sustainable agriculture, in its ecological, economic and social dimensions. Approaches to determine the bio-physical and socio-economic sustainability of a land use systems and of agricultural value chains are evaluated, and possibilities to implement sustainable management strategies along the continuum of water, soils, plants, animals, producers and consumers are discussed, thereby also accounting for relevant temporal and spatial scales.	4 SWS
Prüfung: Klausur (90 Minuten) **Prüfungsanforderungen:** • general definitions and indicators for sustainable development; strong and weak sustainability; the substitution-paradigm and its limits; carrying capacity and critical natural capital; economic growth models; economic approaches for the quantification of sustainable development; SNA / green accounting; cost-benefit analysis. • dimensions of social sustainability; utilization of communal resources; McDonaldisation of agriculture; agriculture and social justice. • multi-functionality and farm-management; realization of sustainability concepts in the farm enterprise; agro-ecological systems and sustainable farm management; indicators for enterprise sustainability; controlling of sustainability; profitability of organic farming; collective forms of farming. • sustainability of livestock husbandry; environmental effects of animal keeping and their avoidance: a) GHG emissions and environmental pollution from animal holdings; b) overgrazing.	6 C

• concepts of sustainability; agroforestry systems; shifting cultivation; effects on soil fertility and sustainability. • role of soils in ecosystems; soil types; soil functions and soil threats/degradation; physical, chemical and biological soil quality indicators; soil organic matter; soil as a carbon sink or source and greenhouse gas emissions; soil conservation; soil compaction.	

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** keine
Sprache: Englisch	**Modulverantwortliche[r]:** Prof. Dr. Eva Schlecht
Angebotshäufigkeit: jedes Wintersemester; Witzenhausen	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: nicht begrenzt	

Bemerkungen:
Literature:

Lecture notes and reading materials distributed during the module;
Bell, S. & Morse, S., 2003. Measuring sustainability: learning by doing; Earthscan, London, UK. Bell, S. & Morse, S., 2008. Sustainability indicators: measuring the immeasurable? Earthscan, London, UK.

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Module M.SIA.P08: Pests and diseases of tropical crops**	6 C 6 WLH

Learning outcome, core skills: Students should become familiar with the causes of diseases (abiotic & biotic diseases), with the taxonomy of disease agents (bacteria, fungi, virus) and insect pests, with basics of integrated pest management (approaches, economic threshold, epidemiology), and biological, cultural control (cultivars, crop rotation, planting term, manual control), and chemical control options (toxicology, fungicides, insecticides) of the main crops in subtropical and tropical regions	**Workload:** Attendance time: 84 h Self-study time: 96 h

Course: Pests and diseases of tropical crops (Lecture, Seminar) *Contents*: Pests and diseases of selected crops are treated together for each crop including approaches to integrated control. The following crops will be presented: rice, maize, cotton, cocoa, coffee, cassava, phaseolus beans, bananas, and others. For each crop, a short introduction to botanical and agronomic features (as far as they concern disease or pest control) is given, together with an overview of the main diseases world-wide. The economic importance of diseases and pests in different geographical areas is discussed. The most important diseases and pests of die crop are treated in detail and die possibilities for integrated control are discussed. Short introductions (reviews) on basic subjects of plant protection are given, these include: causes of diseases (abiotic & biotic diseases), taxonomy of disease agents (bacteria, fungi, viruses) and insect pests, integrated pest management (approaches, economic threshold), biological control (diseases, pests), cultural control (varieties, crop rotation, planting term, manual control), and chemical control (toxicology, fungicides, insecticides). Students will give seminars on related topics. Vorlesungsbasierte Literatur	6 WLH
Examination: Written exam (60 minutes, 67%) and presentation (ca. 20 minutes, 33%) **Examination prerequisites:** Seminar speech **Examination requirements:** Knowledge on the most important pests and diseases of tropical and subtropical crops; chemical and biological control options, phytosanitary approaches, and sustainable cropping systems for tropical crops.	6 C

Admission requirements: none	**Recommended previous knowledge:** Basic knowledge (B.Sc. level) in agricultural entomology, plant diseases and plant production
Language: English	**Person responsible for module:** Prof. i. R. Dr. Stefan Vidal
Course frequency:	**Duration:**

each summer semester; Göttingen	1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:**
Maximum number of students: 30	

Additional notes and regulations:

Literature:

Lecture based materials; details provided during lectures.

Georg-August-Universität Göttingen **Universität Kassel/Witzenhausen** **Modul M.SIA.P10: Tropical agro-ecosystem functions** *English title: Tropical agro-ecosystem functions*	6 C 4 SWS

Lernziele/Kompetenzen: Knowledge of the processes of soil degradation as well as of the measures for their control or prevention in selected land use systems of the tropics and subtropics; knowledge of ecological system functions and their synthesis in agronomic concepts for the adaptation to unfavourable climatic and pedological conditions in the tropics and subtropics.	**Arbeitsaufwand:** Präsenzzeit: 56 Stunden Selbststudium: 124 Stunden

Lehrveranstaltung: Tropical agro-ecosystem functions (Vorlesung, Seminar) *Inhalte*: Introduction to and overview of agronomy-based land use systems in the tropics and subtropics taking into account ecological points of view. Analysis of the sustainability of plant production under special consideration of the physical, chemical and biological soil quality as well as the efficient water use in the seasonal tropics.	4 SWS
Prüfung: Präsentation, Referat oder Korreferat (ca. 30 Minuten, Gewichtung: 50%) und mündliche Prüfung (ca. 30 Minuten, Gewichtung: 50%) **Prüfungsanforderungen:** Knowledge about the processes of soil degradation and the measures taken to control or prevent in selected land use systems in the tropics and subtropics; knowledge of ecosystem functions and their synthesis in agronomic concepts to adapt to unfavorable climatic and pedological conditions in the tropics and subtropics.	6 C

Zugangsvoraussetzungen: keine	**Empfohlene Vorkenntnisse:** Basic knowledge (B.Sc. level) of soil and plant sciences
Sprache: Englisch	**Modulverantwortliche[r]:** Dr. Ronald Franz Kühne
Angebotshäufigkeit: jedes Sommersemester; Göttingen	**Dauer:** 1 Semester
Wiederholbarkeit: zweimalig	**Empfohlenes Fachsemester:**
Maximale Studierendenzahl: 15	

Bemerkungen:

Literature:

Lecture notes and handouts, selected chapters from textbooks; copies of PowerPoint presentations

Georg-August-Universität Göttingen **Module M.WIWI-VWL.0008: Development Economics I: Macro Issues in Economic Development**	6 C 4 WLH

Learning outcome, core skills: Expose students to macroeconomic issues in economic development, including how economic growth, trade, inequality, aid, capital flows, and population issues affect economic development. They understand historical roots of underdevelopment and acquire knowledge of current economic models and empirical approaches in these topic areas.	**Workload:** Attendance time: 56 h Self-study time: 124 h

Course: Development Economics I (Lecture) *Contents*: Overview of macroeconomic issues and approaches to analyzing problems of developing countries. Topics include measurement of development, historical evolution of income differences, growth theory, and linkages between trade, finance, aid, population, and inequality and economic development.	2 WLH
Course: Development Economics I (Exercise) *Contents*: The tutorial is used to deepen understanding of concepts used in the lecture, discuss relevant literature, and apply concepts and methods developed in the lecture.	2 WLH
Examination: Written Exam	6 C

Examination requirements: The students demonstrate a good understanding of key theories and models of economic development. They are able to critically present these theories and models, are able to interpret empirical results that relate to these models, and are able to crucially draw relevant policy conclusions coming out of these models and empirical assessments.	

Admission requirements: None	**Recommended previous knowledge:** Knowledge of macroeconomics and econometrics at BA level is highly desirable.
Language: English	**Person responsible for module:** Prof. Stephan Klasen
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 3
Maximum number of students: not limited	

Georg-August-Universität Göttingen **Module M.WIWI-VWL.0055: Globalization and Development**	6 C 2 WLH

Learning outcome, core skills: After successful completion of the course students will be able to: • understand how globalization can contribute to economic development in developing economies and which risks it entails, • understand not only the growth effects of trade and trade liberalization, but also on inequality, and poverty in developing countries, • understand the analytical – both theoretical and empirical – tools and models to assess the transmission channels of globalization, • critically evaluate the potential development impacts of policies related to globalization, in particular trade and investment policies.	**Workload:** Attendance time: 28 h Self-study time: 152 h

Course: Globalization and Development (Seminar) *Contents*: The following list of issues and questions are exemplary of issues and questions covered by the seminar. This list is subject to change, as new aspects of globalization become relevant: • Defining and measuring globalization • Does trade lead to higher growth? • Capital account liberalization, financial globalization and development • Competing concepts of inequality in the Globalization Debate • Does globalization make the poor poorer and the rich richer? Inequality trends within developing countries • The links between trade liberalization and poverty • Do agricultural subsidies in rich countries really hurt the poor? • Agricultural high value products: Pathway out of poverty? • Manufacturing in poor countries: Yet another form of exploitation? • Rising food prices and the poor • Land grab or beneficial investment? Large-scale agricultural investments in developing countries • Migration, trade and development • Globalization, Patents, and health	2 WLH

Examination: Presentation (ca. 15 minutes) with written elaboration (max. 20 pages)	6 C

Examination requirements: In the paper, students demonstrate their ability to critically review academic studies on a particular topic, show their ability to synthesize the results and develop a clear argument backed by the evidence in the literature. They also demonstrate their ability to judge the quality and relevance of research on the topic, structure the theoretical and empirical insights from the literature, and, accordingly, write an own scientific paper that comprises policy implications. In the presentation, they demonstrate their ability to	

present key insights from complex theoretical and empirical papers, and to present and defend their own argument on the chosen topic/question.	

Admission requirements: none	**Recommended previous knowledge:** B.WIWI-OPH.0008 Macroeconomics I B.WIWI-OPH.0007 Microeconomics I B.WIWI-VWL.0006 Economic Growth and Development
Language: English	**Person responsible for module:** apl. Prof. Dr. Jann Lay
Course frequency: each winter semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 4
Maximum number of students: 20	