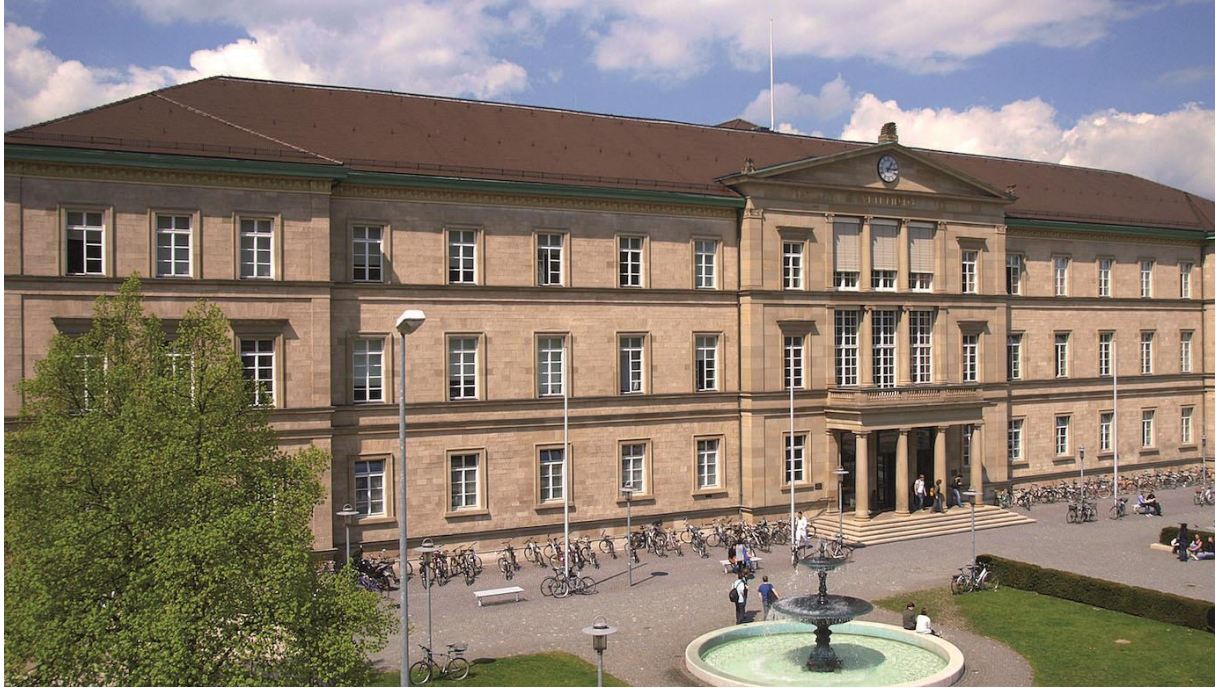


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Study Guide and Module Handbook
Archaeological Sciences and Human Evolution
M.Sc.

Winter Semester 2021 / 2022

Mathematisch-Naturwissenschaftliche Fakultät
Fachbereich Geowissenschaften
Institut für Naturwissenschaftliche Archäologie



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List of Abbreviations

Grading System:	g = graded ng = non-graded (pass/fail)
Type of Assessment/Study Requirement:	WE = written exam (e.g. assignment, term paper, written report) OE = oral exam (e.g. presentation, oral examination)
Duration of Assessment:	Duration of the assessment in <i>min</i>
Weighting:	For Modules = Weighting of module grade in percent for final grade
CH:	Credit Hours
Status:	c = compulsory op = optional
Type of Lecture:	L = Lecture C = Colloquium S = Seminar E = Exercise (<i>Übung</i>) F = Field Trip P = Practical (<i>[Labor-]Praktikum</i>) Pr = Project
CP:	Credit Points (ECTS)
Subject-related Abbreviations	
IASHE:	Institute for Archaeological Sciences and Human Evolution
ASHE	Archaeological Sciences and Human Evolution
CCA-BW	Competence Centre Archaeometry Baden-Württemberg
FTIR/μFTIR	Fourier-Transform-Infrared Spectroscopy/micro-Fourier-Transform-Infrared Spectroscopy
XRF/μXRF	X-ray Fluorescence/micro-X-ray Fluorescence
XRD/μXRD	X-ray Diffraction/micro-X-ray Diffraction
SEM	Scanning Electron Microscope
ORA	Organic Residue Analysis

Introduction

With the master's program Archaeological Sciences and Human Evolution, we offer an international and research-oriented study program for young scientists interested in applying scientific methods to archaeological questions focusing on human biocultural evolution. The study program covers a wide range of scientific disciplines that are key components in archaeology. The program is offered by the Institute for Archaeological Sciences and Human Evolution (IASHE) at the University of Tübingen. Only a few institutions throughout the world offer a comparable diversity of learning and training opportunities and the IASHE is world-renown for its interdisciplinary approach. We provide advanced knowledge in the following seven scientific disciplines: Archaeobotany, Archaeometry, Geoarchaeology, Paleoanthropology, Paleogenetics, Stone Age Archaeology, and Zooarchaeology (Figure 1). Students specialize in one of the seven disciplines to gain in-depth theoretical knowledge and comprehensive practical experience. For their master's theses, students have the chance to become involved in various international research projects from all over the world. The master's program Archaeological Sciences and Human Evolution is designed as a two-year study program (four semesters), and upon successful completion students are awarded the academic degree Master of Science (M.Sc.).

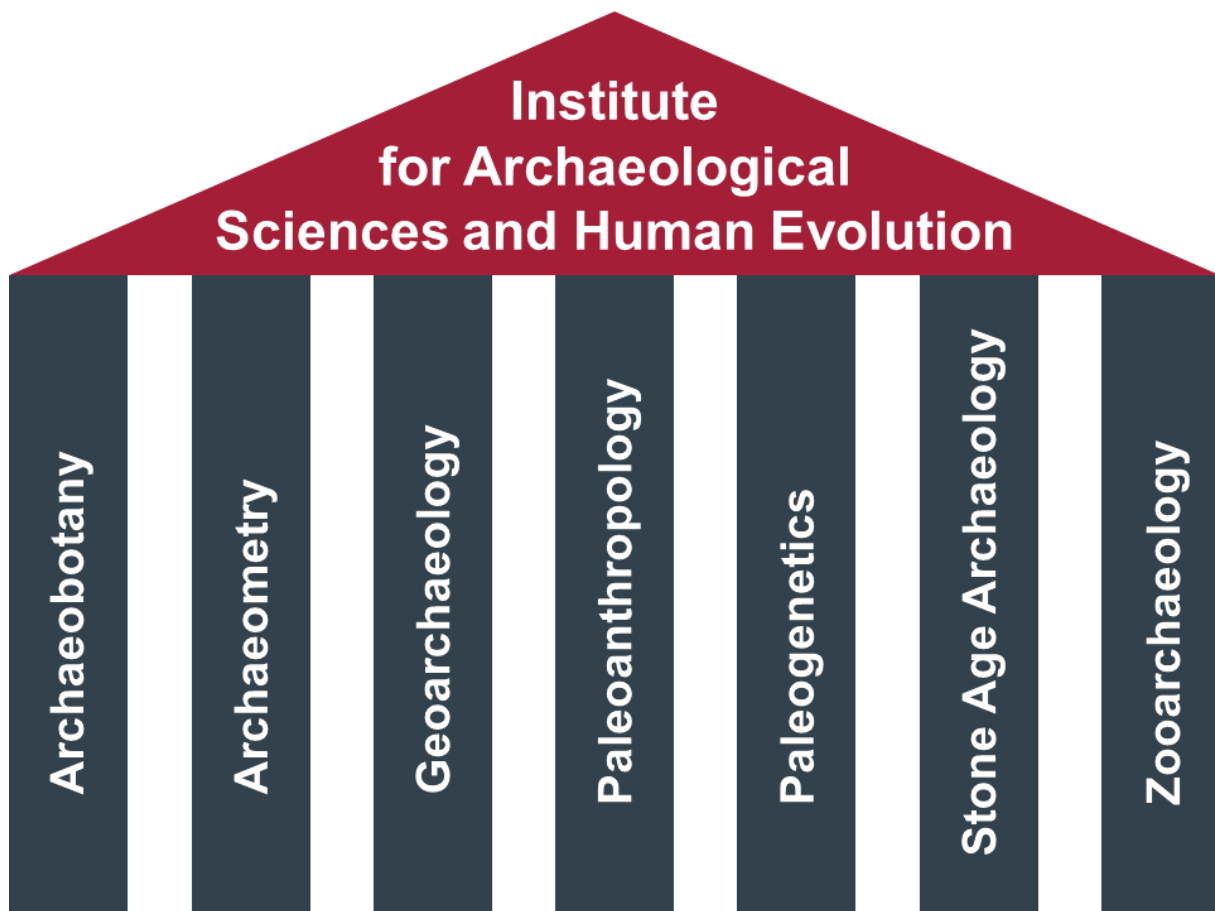


Figure 1. Structure of the Institute for Archaeological Sciences and Human Evolution with the seven different disciplines that the students can specialize during the master's program.

Qualification Goals

The study program of the M.Sc. Archaeological Sciences and Human Evolution provides students with advanced research-oriented scientific qualifications and trains students in the application of state-of-the-art methods to research human biocultural evolution.

In the extensive curriculum of the masters' program, students acquire profound theoretical knowledge about archaeology and human evolution as well as on concepts and the practical application of diverse analytical approaches to research archaeological questions. Students are trained extensively in reading and evaluating scientific publications, critically discussing results, and developing own problem-oriented research designs. The strong application-based focus of the master's program familiarizes students with laboratory protocols and analytical procedures in the chosen field of specialization (Archaeobotany, Archaeometry, Geoarchaeology, Paleoanthropology, Paleogenetics, Stone Age Archaeology, or Zooarchaeology). This enables graduates to identify research gaps in current research, to design and perform appropriate field and laboratory investigations, and to interpret, contextualize and present the results of data analyses.

The M.Sc. program lays an excellent foundation for doctoral studies in the chosen specialization, enabling graduates to pursue a career in academia. Key employers for graduates of the M.Sc. program are universities and international research institutions to follow up a Ph.D. project. Moreover, students with a M.Sc. in Archaeological Sciences and Human Evolution are well-prepared for a job in archaeological and natural history museums or offices and institutions for the preservation of cultural and architectural heritage.

Curriculum

General Overview

The designated period of the study program is four semesters (two years). The study program can be started in the winter semester only. In general, the program is a mix of compulsory modules that provide essential skills for pursuing an academic career in archaeological sciences and human evolution, and compulsory-elective modules that allow for in-depth specialization in one of the seven different disciplines. The program language is English.

In the first semester, students are introduced to archaeological sciences and human evolution and build a strong basis for the following semesters (Figure 2). The students take two compulsory modules, Perspectives in Human Evolution (**ASHE-1a**) (joint with attending the ASHE Colloquium [**ASHE-1b**] for three semesters) and Theories and Methods in Archaeology (**ASHE-2**). Furthermore, students choose three compulsory-elective modules that give comprehensive introductions to three of the seven different disciplines (**ASHE-3a-g**). One of the three introductory modules must be an introduction to the discipline in which the student would like to specialize. The other two modules can be chosen out of the remaining introductory modules (**ASHE-3a-g**) to fit specific interests and to create the basis for interdisciplinary work.

In the second semester, students take the compulsory module Research Design (**ASHE-4**) to learn how to pursue their own research question and analytical framework for their master's theses. Students also take the compulsory module Interdisciplinary Topics (**ASHE-5**), which will allow them to choose among a variety of courses from other curricula. Moreover, students take two compulsory-elective modules that deepen their knowledge in the discipline that they are specializing (**ASHE-6** and **ASHE-7**).

In the third semester, students again have the chance to take two compulsory-elective modules that deepen their knowledge in their specialization discipline (**ASHE-8** and **ASHE-9**). The students also take the compulsory module Statistics (**ASHE-10**) to strengthen their analytical knowledge and to improve data handling. Students take the compulsory module Project and Work Experience (**ASHE-11**) and gain first-hand practical experience, either in the field or in the laboratory. Depending on the type of practical work, this module can be done either in the second summer and/or in the third winter semester. This practical experience is also the preparation for the master thesis (**ASHE-12**) that will be completed in the final, fourth semester.

1. Semester	2. Semester	3. Semester	4. Semester
ASHE-1b: ASHE Colloquium* (3 ECTS)			ASHE-12: Master-Thesis (30 ECTS)
ASHE-1a: Perspectives in Human Evolution (3 ECTS)	ASHE-4: Research Design (6 ECTS)	ASHE-8a-g: Specialization III (6 ECTS)	
ASHE-2: Theories and Methods in Archaeology (6 ECTS)	ASHE-5: Interdisciplinary Topics (6 ECTS)	ASHE-9a-g: Specialization IV (6 ECTS)	
ASHE-3a-g: Introduction to Specialization (6 ECTS)	ASHE-6a-g: Specialization I (6 ECTS)	ASHE-10: Statistics (6 ECTS)	
ASHE-3a-g: Introduction to Specialization (6 ECTS)	ASHE-7a-g: Specialization II (6 ECTS)	ASHE-11: Project and Work Experience (18 ECTS)	
ASHE-3a-g: Introduction to Specialization (6 ECTS)			

Compulsory
 Compulsory-Elective

* For the specialization Stone Age Archaeology also the SAA Colloquium is attended from 1st-3rd semester as part of module ASHE-8f.

Figure 2. Curriculum overview of the master’s program Archaeological Sciences and Human Evolution (ASHE). For modules ASHE 3,7,8,9,10: (a) Archaeobotany, (b) Archaeometry, (c) Geoarchaeology, (d) Paleoanthropology, (e) Paleogenetics, (f) Stone Age Archaeology, (g) Zooarchaeology.

Overview by Modules

For modules 3,7,8,9,10: (a) Archaeobotany, (b) Archaeometry, (c) Geoarchaeology, (d) Paleoanthropology, (e) Paleogenetics, (f) Stone Age Archaeology, (g) Zooarchaeology.

Module number	Compulsory/ Compulsory-Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a</u>	C-E	<u>Introduction to Archaeobotany and Paleobotany</u>	1	6
<u>ASHE-3b</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6a</u>	C-E	<u>Economic Archaeobotany: Plants & People</u>	2	6
<u>ASHE-6b</u>	C-E	<u>Special Topics in Archaeometry I</u>	2	6
<u>ASHE-6c</u>	C-E	<u>Special Topics in Geoarchaeology</u>	2	6
<u>ASHE-6d</u>	C-E	<u>Imaging and Morphometrics</u>	2	6
<u>ASHE-6e</u>	C-E	<u>Advances in Archaeo- and Paleogenetics</u>	2	6
<u>ASHE-6f</u>	C-E	<u>Stone Age Technology</u>	2	6
<u>ASHE-6g</u>	C-E	<u>Methods in Zooarchaeology</u>	2	6
<u>ASHE-7a</u>	C-E	<u>Paleoenvironments & Ancient Societies</u>	2	6
<u>ASHE-7b</u>	C-E	<u>Special Topics in Archaeometry II</u>	2	6
<u>ASHE-7c</u>	C-E	<u>Methods in Geoarchaeology I</u>	2	6
<u>ASHE-7d</u>	C-E	<u>Human Fossil Evolution</u>	2	6
<u>ASHE-7e</u>	C-E	<u>Laboratory Methods in Archaeo- and Paleogenetics</u>	2	6
<u>ASHE-7f</u>	C-E	<u>Cultural Evolution</u>	2	6
<u>ASHE-7g</u>	C-E	<u>Zooarchaeology and Human Evolution</u>	2	6

<u>ASHE-8a</u>	C-E	<u>Anthracology: Humans and their environment</u>	3	6
<u>ASHE-8b</u>	C-E	<u>Organic Materials in Archaeological Contexts</u>	3	6
<u>ASHE-8c</u>	C-E	<u>Interdisciplinary Geoarchaeology (Import)</u>	3	6
<u>ASHE-8d</u>	C-E	<u>Human Anatomy – Soft Tissue</u>	3	6
<u>ASHE-8e</u>	C-E	<u>Interdisciplinary Paleogenetics (Import)</u>	3	6
<u>ASHE-8f</u>	C-E	<u>Stone Age Economics</u>	3	6
<u>ASHE-8g</u>	C-E	<u>Zooarchaeology and the Environment</u>	3	6
<u>ASHE-9a</u>	C-E	<u>Interdisciplinary Archaeobotany (Import)</u>	3	6
<u>ASHE-9b</u>	C-E	<u>Material Science and Archaeological Ceramics: Ceramic Petrography and Geochemistry</u>	3	6
<u>ASHE-9c</u>	C-E	<u>Methods in Geoarchaeology II</u>	3	6
<u>ASHE-9d</u>	C-E	<u>Special Topics in Paleoanthropology</u>	3	6
<u>ASHE-9e</u>	C-E	<u>Essentials in Evolutionary Biology (BIO4009 Import)</u>	3	6
<u>ASHE-9f</u>	C-E	<u>Stone Age Society & Ideology</u>	3	6
<u>ASHE-9g</u>	C-E	<u>Advanced Zooarchaeology</u>	3	6
<u>ASHE-10</u>	C	<u>Statistics (BIO3010 Import)</u>	3	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	2/3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30

Overview by Specialization

a) Archaeobotany

*Compulsory for specializing in Archaeobotany, select two more out of ASHE-3b-g.

Module number	Compulsory/ Compulsory- Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a*</u>	C-E	<u>Introduction to Archaeobotany and Paleoethnobotany</u>	1	6
<u>ASHE-3b</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6a</u>	C-E	<u>Economic Archaeobotany: Plants & People</u>	2	6
<u>ASHE-7a</u>	C-E	<u>Paleoenvironments & Ancient Societies</u>	2	6
<u>ASHE-8a</u>	C-E	<u>Anthracology: Humans and their environment</u>	3	6
<u>ASHE-9a</u>	C-E	<u>Interdisciplinary Archaeobotany (Import)</u>	3	6
<u>ASHE-10</u>	C	<u>Statistics (BIO3010 Import)</u>	3	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	2/3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30
Σ				120

b) Archaeometry

*Compulsory for specializing in Archaeometry, select two more out of ASHE-3a, c-g.

Module number	Compulsory/ Compulsory-Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a</u>	C-E	<u>Introduction to Archaeobotany and Paleoethnobotany</u>	1	6
<u>ASHE-3b*</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6b</u>	C-E	<u>Special Topics in Archaeometry I</u>	2	6
<u>ASHE-7b</u>	C-E	<u>Special Topics in Archaeometry II</u>	2	6
<u>ASHE-8b</u>	C-E	<u>Organic Materials in Archaeological Contexts</u>	3	6
<u>ASHE-9b</u>	C-E	<u>Material Science and Archaeological Ceramics</u>	3	6
<u>ASHE10</u>	C	<u>Statistics (BIO3010 Import)</u>	3	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	2/3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30
Σ				120

c) Geoarchaeology

*Compulsory for specializing in Geoarchaeology, select two more out of ASHE-3a, b, d-g.

Module number	Compulsory/ Compulsory-Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a</u>	C-E	<u>Introduction to Archaeobotany and Paleoethnobotany</u>	1	6
<u>ASHE-3b</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c*</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6c</u>	C-E	<u>Special Topics in Geoarchaeology</u>	2	6
<u>ASHE-7c</u>	C-E	<u>Methods in Geoarchaeology I</u>	2	6
<u>ASHE-8c</u>	C-E	<u>Interdisciplinary Geoarchaeology (Import)</u>	3	6
<u>ASHE-9c</u>	C-E	<u>Methods in Geoarchaeology II</u>	3	6
<u>ASHE-10</u>	C	<u>Statistics (BIO3010 Import)</u>	3	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	2/3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30
Σ				120

d) Paleoanthropology

*Compulsory for specializing in Paleoanthropology, select two more out of ASHE-3a-c, e-g.

Module number	Compulsory/ Compulsory- Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a</u>	C-E	<u>Introduction to Archaeobotany and Paleoethnobotany</u>	1	6
<u>ASHE-3b</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d*</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6d</u>	C-E	<u>Imaging and Morphometrics</u>	2	6
<u>ASHE-7d</u>	C-E	<u>Human Fossil Evolution</u>	2	6
<u>ASHE-8d</u>	C-E	<u>Human Anatomy – Soft Tissue</u>	3	6
<u>ASHE-9d</u>	C-E	<u>Special Topics in Paleoanthropology</u>	3	6
<u>ASHE-10</u>	C	<u>Statistics (BIO3010 Import)</u>	3	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	2/3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30
Σ				120

e) Paleogenetics

*Compulsory for specializing in Paleogenetics, select two more out of ASHE-3a-d, f, g.

Module number	Compulsory/ Compulsory- Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a</u>	C-E	<u>Introduction to Archaeobotany and Paleoethnobotany</u>	1	6
<u>ASHE-3b</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e*</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6e</u>	C-E	<u>Advances in Archaeo- and Paleogenetics</u>	2	6
<u>ASHE-7e</u>	C-E	<u>Laboratory Methods in Archaeo- and Paleogenetics</u>	2	6
<u>ASHE-8e</u>	C-E	<u>Interdisciplinary Paleogenetics (Import)</u>	3	6
<u>ASHE-9e</u>	C-E	<u>Essentials in Evolutionary Biology (BIO4009 Import)</u>	3	6
<u>ASHE-10</u>	C	<u>Statistics (BIO3010 Import)</u>	2	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30
Σ				120

f) Stone Age Archaeology

*Compulsory for specializing in Stone Age Archaeology, select two more out of ASHE-3a-e, g.

Module number	Compulsory/ Compulsory- Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a</u>	C-E	<u>Introduction to Archaeobotany and Paleoethnobotany</u>	1	6
<u>ASHE-3b</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f*</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6f</u>	C-E	<u>Stone Age Technology</u>	2	6
<u>ASHE-7f</u>	C-E	<u>Cultural Evolution</u>	2	6
<u>ASHE-8f</u>	C-E	<u>Stone Age Economics</u>	3	6
<u>ASHE-9f</u>	C-E	<u>Stone Age society and ideology</u>	3	6
<u>ASHE-10</u>	C	<u>Statistics (BIO3010 Import)</u>	3	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	2/3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30
Σ				120

g) Zooarchaeology

*Compulsory for specializing in Zooarchaeology, select two more out of ASHE-3a-f.

Module number	Compulsory/ Compulsory-Elective	Module Title	Recommended Semester	CP
<u>ASHE-1a</u>	C	<u>Perspectives in Human Evolution</u>	1	3
<u>ASHE-1b</u>	C	<u>ASHE Colloquium</u>	1-3	3
<u>ASHE-2</u>	C	<u>Theories and Methods in Archaeology</u>	1	6
<u>ASHE-3a</u>	C-E	<u>Introduction to Archaeobotany and Paleoethnobotany</u>	1	6
<u>ASHE-3b</u>	C-E	<u>Introduction to Archaeometry</u>	1	6
<u>ASHE-3c</u>	C-E	<u>Introduction to Geoarchaeology</u>	1	6
<u>ASHE-3d</u>	C-E	<u>Introduction to Paleoanthropology</u>	1	6
<u>ASHE-3e</u>	C-E	<u>Introduction to Paleogenetics</u>	1	6
<u>ASHE-3f</u>	C-E	<u>Introduction to Stone Age Archaeology</u>	1	6
<u>ASHE-3g*</u>	C-E	<u>Introduction to Zooarchaeology</u>	1	6
<u>ASHE-4</u>	C	<u>Research Design: Academic Writing and Presenting</u>	2	6
<u>ASHE-5</u>	C	<u>Interdisciplinary Topics (Import)</u>	2	6
<u>ASHE-6g</u>	C-E	<u>Methods in Zooarchaeology</u>	2	6
<u>ASHE-7g</u>	C-E	<u>Zooarchaeology and Human Evolution</u>	2	6
<u>ASHE-8g</u>	C-E	<u>Zooarchaeology and the Environment</u>	3	6
<u>ASHE-9g</u>	C-E	<u>Advanced Zooarchaeology</u>	3	6
<u>ASHE-10</u>	C	<u>Statistics (BIO3010 Import)</u>	3	6
<u>ASHE-11</u>	C	<u>Project and Work Experience</u>	2/3	18
<u>ASHE-12</u>	C	<u>Master Thesis</u>	4	30
Σ				120

Module Descriptions

ASHE-1a: Perspectives in Human Evolution

Module number: ASHE-1a	Module title: Perspectives in Human Evolution		Type of module: Compulsory						
Credit Points (ECTS)	3								
Workload - Contact time - Private study	Workload: 90 h	Contact time: 30 h / 2 CH	Private study: 60 h						
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lecture								
Module content	<ul style="list-style-type: none"> • Overview of theoretical concepts of evolution as applied to the human lineage • Introduction to the human fossil and cultural / behavioral records of the last 7 million years, methods of analysis • Review aspects of extant human variation and their relation to ongoing evolutionary processes today • Review genetic methods of reconstructing the human past from extant populations and from ancient DNA, their advantages and limitations • Review methods, and their limitations, for dating, paleoenvironmental reconstruction and site formation processes and their importance for understanding the human past 								
Qualification goals	<ul style="list-style-type: none"> • Insights into evolutionary theory concepts • Knowledge of the human biological and cultural evolutionary history and human variation • Being able to choose methods with their advantages / limitations, including methods for the analysis of the fossil and archaeological record, as well as genetic, geoarchaeological and paleoenvironmental reconstruction methods, as they pertain to the understanding of human evolution 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Perspectives in Human Evolution</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>90 min</i>	<i>g</i>	<i>100</i>
Module exam	The module will be assessed based on a written assignment								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-1b: ASHE Colloquium

Module number: ASHE-1b	Module title: ASHE Colloquium		Type of module: Compulsory						
Credit Points (ECTS)	3								
Workload - Contact time - Private study	Workload: 90 h	Contact time: 30 h / 2 CH	Private study: 60 h						
Duration of module	3 semesters								
Regular cycle	Every semester								
Language	English								
Learning- / Teaching forms	Colloquium								
Module content	<ul style="list-style-type: none"> Critical reflection on state-of-the-art research of the subject of archaeology Participation in the IASHE colloquium in which national and international speakers present their results on newest research relevant to the field of scientific archaeology 								
Qualification goals	<ul style="list-style-type: none"> Knowledge of the current research fields in archaeological sciences Knowledge of methods and their advantages / limitations, including methods for the analysis of the fossil and archaeological record 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>INA Colloquium</i>	C	c	2	3	-	-	-	-
Module exam	None								
Study Requirement	Regular participation								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-2: Theories and Methods in Archaeology

Module number: ASHE-2	Module Title: Theories and Methods in Archaeology		Type of Module: Compulsory						
Credits (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 45 h / 3 CH	Self-study: 135 h						
Duration of Module	1 semester								
Regular Cycle	Every winter semester								
Language	English								
Type of Lecture	Seminar and practical								
Module Content	<ul style="list-style-type: none"> • Presentation of the basic theories and methods in archaeology • Reading and discussion of key texts on the theoretical and methodological developments in archaeology • Critical reflection on the theoretical and methodological foundations of the various subject in archaeology 								
Qualification Goals	<ul style="list-style-type: none"> • Knowledge of the terminology, the most important issues and methods of archaeology • Basic insights into the history of the subject and the current theoretical discourse in archaeology • Knowledge of advanced humanities and natural scientific approaches in archaeology • Ability to summarize complex theoretical and methodological questions of archaeology, to classify them historically, and to critically reflect on them • Independent development of teaching content, especially by reading key texts • Acquisition of practical experience in oral presentations and critical discussion of own results 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Theories and Methods in Archaeology</i>	<i>S</i>	<i>c</i>	<i>3</i>	<i>3</i>	<i>WE</i>	<i>-</i>	<i>g</i>	<i>100</i>
	<i>Lab Tour</i>	<i>P</i>	<i>c</i>	<i>3</i>	<i>3</i>				
Module exam	Term paper in seminar component								
Study Requirement	Regular participation, reading and discussion of texts, ungraded presentation								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-3a: Introduction to Archaeobotany and Paleoethnobotany

Module number: ASHE-3a	Module title: Introduction to Archaeobotany and Palaeoethnobotany				Type of module: Compulsory-Elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS			Private study: 120 h				
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Combination of introductory lectures and student presentations and laboratory practical course								
Module content*	<ul style="list-style-type: none"> • Introduction to archaeobotany and its different fields of specialization (macro- and micro-remains); basic field methods and taphonomy; Laboratory methods; Quantification and interpretative tools • Major research fields and topics of the discipline; Case studies from Central European dryland and wetland archaeobotany, African archaeobotany, Tropical archaeobotany and Near Eastern archaeobotany • Interdisciplinary approaches such as stable isotopes on plant macro-remains, multidisciplinary studies for reconstructing ancient vegetation dynamics, ancient diet as reflected by archaeobotany and organic residue analysis or combining faunal and botanical remains to reconstruct ancient husbandry practices and diet (gut contents, dung; stable isotope and organic residue analyses) • Laboratory classes: basic lab methods for investigating seeds, fruits and chaff remains; Identifying archaeobotanical remains with the binocular, using identification keys and the comparative collection; 2 alternating courses are offered: summer term (=BNWA 4) focusing on charred remains and winter term on waterlogged plant remains 								
Qualification goals	<ul style="list-style-type: none"> • Gaining a principle understanding of archaeobotany and its potential to address questions, relevant to the history of humankind • Knowledge of the main approaches and methods used in archaeobotany 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Introduction to Archaeobotany and Palaeoethnobotany</i>	<i>L/S</i>	<i>C</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>20 min.</i>	<i>g</i>	<i>100</i>
	<i>Introduction to Archaeobotany and Palaeoethnobotany</i>	<i>P</i>	<i>C</i>	<i>2</i>	<i>3</i>				
Module exam	The module exam is part of the seminar component								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-3b: Introduction to Archaeometry

Module number: ASHE-3b	Module title: Introduction to Archaeometry				Type of module: Compulsory-Elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h		Contact time: 60 h / 4 SWS			Private study: 120 h			
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lectures and Seminars								
Module content	<p>This module will serve as an introduction to the application of archaeometric techniques to key themes in archaeology, including diet, migration, manufacture and provenance. The course content will not be exhaustive of the techniques available, but will serve as a general introduction to the science behind the different methodologies and their archaeological application. Lectures will cover key techniques and applications, and this will be supplemented by seminars addressing the archaeological questions and demonstrations of the laboratories and equipment used in Archaeometry.</p> <p>This module will serve as an introduction to the specialisation modules in Archaeometry.</p>								
Qualification goals	<p>By the end of the module, students will gain an overview of the analytical archaeometric methods that can be applied to a wide range of materials recovered from archaeological contexts.</p> <p>Students will gain knowledge in the terminology used and, in the questions, and applications addressed by archaeometric studies.</p> <p>Students will gain the ability to critically read archaeometric literature, and independent study through reading scientific papers.</p>								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Introduction to Archaeometry</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>-</i>	<i>g</i>	<i>100</i>
	<i>Introduction to Archaeometry</i>	<i>S</i>	<i>c</i>	<i>2</i>	<i>3</i>				
Module exam	The module will be assessed based on a written assignment								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-3c: Introduction to Geoarchaeology

Module number: ASHE-3c	Module Title: Introduction to Geoarchaeology				Type of Module: Compulsory-Elective				
Credit Points (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h		Contact Time: 60 h / 4 CH			Self-study: 120 h			
Duration of Module	1 semester								
Regular Cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lectures covering key concepts are augmented by seminars which will focus on discussion and readings of illustrative case studies.								
Module Content	<p>This module provides a general introduction to the field of geoarchaeology, with a particular emphasis on common depositional environments and processes encountered at archaeological sites. Key topics include:</p> <ul style="list-style-type: none"> • Sedimentary processes in different environments, from the site to landscape scale • Basic concepts of archaeological stratigraphy • The effects of different environments on the preservation and formation of the archaeological record • Occupation deposits • Human impact on landscapes • Soil-forming processes in the archaeological record • Post-depositional alteration processes <p>This course is foundational for further courses offered in geoarchaeology.</p>								
Qualification Goals	Through completion of the course, students will gain a basic knowledge in essential theoretical and practical concepts of geoarchaeology. They will gain expertise in assessing the stratigraphy of archaeological sites, and will learn how to interpret archaeological landscapes. Furthermore, they will be able to assess post-depositional alteration processes of the archaeological record. Through the seminar, they will be exposed to classic case studies and literature.								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Sediments, soils and landscapes</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>-</i>	<i>g</i>	<i>100</i>
	<i>Site formation processes</i>	<i>S</i>	<i>c</i>	<i>2</i>	<i>3</i>				
Module exam	The module grade is part of the seminar component.								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-3d: Introduction to Paleoanthropology

Module number: ASHE-3d	Module Title: Introduction to Paleoanthropology				Type of Module: Compulsory-Elective				
Credit Points (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH	Self-study: 120 h						
Duration of Module	1 semester								
Regular Cycle	Every winter semester								
Language	English								
Type of Lecture	Lecture and seminar incl. lab practical								
Module Content	<ul style="list-style-type: none"> • Presentation of current topics and theoretical concepts of evolution as applied to the human lineage • Teaching of conventional and modern methods for analyzing human skeletal remains, including biochemical and isotope studies • Discussion of the advantages and disadvantages of different methods for analyzing human skeletal remains and their applicability to Paleoanthropology and the fossil record • Crash course to human osteology 								
Qualification Goals	<ul style="list-style-type: none"> • Knowledge of evolutionary theory concepts and current topics in Paleoanthropology • Knowledge of various osteological, biochemical and population genetic methods for the analysis of fossil remains and their advantages / limitations • Practical experience and knowledge of recording basic osteological data 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Introduction to Paleoanthropology</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>				
	<i>Introduction to Paleoanthropology w/ human osteology crash course</i>	<i>S/P</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>90 min</i>	<i>g</i>	<i>100</i>
Module exam	The module grade is part of the seminar component.								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-3e: Introduction to Paleogenetics

Module number: ASHE-3e	Module title: Introduction to Paleogenetics				Type of module: Compulsory-Elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h		Contact time: 60 h / 4 SWS		Private study: 120 h				
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lecture and Seminar								
Module content	Introduction to the basics, methods and analytical procedures of Paleogenetics Presentation of specific molecular genetic methods and analytical procedures								
Qualification goals	<ul style="list-style-type: none"> • Knowledge of terminology, the most important questions and methods of Archaeogenetics and Paleogenetics. • Knowledge and ability to optimize the applied methodological aspect of Paleogenetics with special consideration of archaeological and human evolution questions. • Independent development of teaching content, especially through the reading of key texts. • Ability to read Paleogenetic literature critically on the basis of basic methodological and content-related knowledge and to reproduce it in oral form. 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Introduction to Paleogenetics</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>90 min</i>	<i>g</i>	<i>100</i>
	<i>Introduction to Paleogenetics</i>	<i>S</i>	<i>c</i>	<i>2</i>	<i>3</i>				
Module exam	The module exam is part of the lecture component.								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-3f: Introduction to Stone Age Archaeology

Module number: ASHE-3f	Module title: Introduction to Stone Age archaeology		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Introductory lecture and more specialized seminar. Lectures predominantly involve face-to-face learning with potential attendant assignments. The seminar component encompasses taught and interactive elements, including reading and discussion of relevant literature and (written) presentation of specific topics.								
Module content	This module is the introductory part of the specialization Stone Age Archaeology. The lecture provides an introductory course and diachronic overview of the archaeology of the global Paleolithic, Mesolithic and Neolithic in its Quaternary ecological context. This part includes coverage of research history, basic terminology, find categories, central issues, interpretative frameworks and current research, encompassing topics such as stone tool technology, cultural stratigraphy, behavioral adaptations, social, economic, symbolic and demographic aspects of the bio-cultural evolution of hominins in the Pleistocene and early Holocene. A more specialized seminar chosen by the students from a pool of offered courses provides deeper insights into specific regional, temporal and thematic issues of global Stone Age archaeology from Europe, Africa, Asia, Australia and the Americas.								
Qualification goals	Students learn basic knowledge and terminology of Stone Age archaeology. They understand the different find categories, applied methods and overarching research questions pursued in this field of study. Students will be enabled to critically reflect on the data, methods, theory and interpretations commonly employed in archaeological research of the Stone Age. They can integrate current research into the history and issues of the field and are able to develop and pursue basic research questions of the Stone Age in written and oral presentation.								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Introduction to Stone Age Archaeology</i>	L	c	2	3	WE	Ca. 15-20 p.	g	100
	<i>Seminar Stone Age Archaeology</i>	S	c	2	3				
Module exam	The module exam (written essay) is part of the seminar component.								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-3g: Introduction to Zooarchaeology

Module number: ASHE-3g	Module title: Introduction to Zooarchaeology				Type of module: Compulsory-Elective				
Credits (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS			Private study: 120 h				
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lecture and seminar								
Module content	<ul style="list-style-type: none"> In the lecture, current topics and problems in zooarchaeological research are presented Conventional methods as well as biomolecular applications such as isotope studies and molecular zooarchaeology are discussed The students will be introduced to basic skeletal anatomy In the seminar, recent studies that use zooarchaeological and biomolecular analyses are read and critically evaluated 								
Qualification goals	<ul style="list-style-type: none"> Knowledge of basic zooarchaeological questions and the methods used when working with faunal material Critical reading of zooarchaeology papers Presentation and discussion skills similar to conference or workshop presentations 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Introduction to Zooarchaeology</i>	L	c	2	3	WE	90 min	b	100
	<i>Introduction to Zooarchaeology</i>	S	c	2	3				
Module exam	The module exam is part of the lecture component.								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE								
Participation Prerequisites	none								

ASHE-4: Research Design: Academic Writing and Presenting

Module number: ASHE-4	Module Title: Research Design: Academic Writing and Presenting		Type of Module: Compulsory						
Credit Points (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH	Self-study: 120 h						
Duration of Module	1 semester								
Regular Cycle	Every summer semester								
Language	English								
Type of Lecture	Seminar								
Module Content	<ul style="list-style-type: none"> • Overview of academic writing skills • Practice of writing academic papers and proposals (writing effective sentences, paragraphs, sections) • Practice of structuring academic papers and proposals (writing effective abstracts, introductions, body, and conclusions, formulating proper research questions and research goals, effective presentation of results, building logical discussions, training in proper citation skills and bibliographic referencing) • Overview of academic presentation structuring (preparing coherent presentations, time allocation to different parts of the presentation) • Overview of academic presenting skills (designing clear and efficient slides, designing figures and tables, speech and vocal training) 								
Qualification Goals	<ul style="list-style-type: none"> • Solid academic writing skills in English. • Knowledge of structuring academic papers and proposals • Knowledge of structuring academic presentations and delivering good scientific presentations 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Academic Writing</i>	S	c	2	3	WE	-	g	50
	<i>Academic Presenting</i>	S	c	2	3	OE	20	g	50
Module exam	The course grade is dependent on the performance on the written and oral assignments								
Study Requirement	Regular participation								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-5: Interdisciplinary Topics

Module number: ASHE-5	Module Title: Interdisciplinary Topics		Type of Module: Compulsory
Credit Points (ECTS)	6		
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH	Self-study: 120 h
Duration of Module	1 semester		
Regular Cycle	Every semester		
Language	English		
Type of Lecture	Lecture, seminar, exercise, practical		
Module Content	<ul style="list-style-type: none"> Advanced, interdisciplinary methods and content 		
Qualification Goals	<ul style="list-style-type: none"> Learning to work critically Developing well-founded, interdisciplinary judgement Have the ability to work in a team Linking of non-subject qualifications with scientific archaeology 		
Prerequisites for the allocation of credits/grades (if necessary weighting)	Optionally graded exam, report, term paper, protocol, seminar presentation, depending on the examination performance specified in the module handbook Any courses of at least 6 ECTS at the University of Tübingen can be credited, whereby no points from interdisciplinary, occupational field-oriented competencies (e.g. career service, specialist language center) can be credited.		
Module exam	Depends on chosen classes.		
Study Requirement	Depends on chosen classes		
Applicability	Before participating in interdisciplinary courses, the usability for scientific archaeology must be checked by the person responsible for the module, Prof. Dr. Nicholas Conard, to be confirmed		
Participation Prerequisites	None		

ASHE-6a: Economic Archaeobotany

Module number: ASHE-6a	Module title: Economic Archaeobotany: Plants & People				Type of module: Compulsory-Elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h			Contact time: 60 h / 4 SWS		Private study: 120 h			
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Combination of introductory lectures and student presentations in seminar								
Module content	<ul style="list-style-type: none"> • <i>Economic Archaeobotany</i>: Case studies on people–plants–society–interrelationships with a focus on ethnoarchaeology, hunter-gatherer archaeobotany, beginnings of plant domestication and social context of food • <i>ASHE-8g: Diet and subsistence</i> Import (only lecture; every 2nd year): Evolution of human diet from the Palaeolithic to the Neolithic time in diverse geographic contexts as reflected in the archaeobiological and isotopic record • Alternatively (instead of <i>Diet and subsistence</i>): after individual consultation other imports are welcome, e.g. <i>ASHE-6d: Imaging and Morphometrics</i> Import (Palaeoanthropology), i.e. useful for cultivar morphometry (own project on cereals possible), or <i>ASHE-7f: Cultural Evolution</i> Import from “Stone Age Archaeology” 								
Qualification goals	<ul style="list-style-type: none"> • Gaining a deeper understanding of how the archaeobotanical record can reflect functions and the use of plants in ancient human societies • Developing scientific reasoning and the critical assessment of archaeobotanical evidence and its interpretation • Reflecting on multiple lines of evidence and their usefulness in addressing questions on ancient subsistence 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Economic Archaeobotany</i>	S	c	2	3	OE	20	g	100
	<i>e.g. Diet and Subsistence (ASHE-8g import)</i>	L	op	2	3				
Module exam	The module exam is part of the seminar (Economic Archaeobotany) component.								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE, specialization Archaeobotany								
Participation Prerequisites	Introduction to Archaeobotany and Paleoethnobotany (ASHE-3a) (recommendation)								

ASHE-6b: Special Topics in Archaeometry I

Module number: ASHE-6b	Module title: Special Topics in Archaeometry I		Type of module: Compulsory-Elective
Credit Points (ECTS)	6		
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h
Duration of module	1 semester		
Regular cycle	Every summer semester		
Language	English		
Learning- / Teaching forms	Depends on the chosen classes.		
Module content	<p>The students choose between: <i>Material Science and Archaeological Ceramics: Ancient Pottery and its Pigments</i> (L+F+P), <i>Material Science and Archaeological Ceramics: Manufacturing and Material Properties of Ancient and Modern Ceramics</i> (L+F+P), or <i>Practicals in Biomolecular Archaeology</i> (L+P).</p> <p><i>Material Science and Archaeological Ceramics: Ancient Pottery and its Pigments:</i> This course provides a broad introduction to the technological study of pigments and decoration in archaeological ceramics, through a material science approach and provides training in the principles of 3D Video microscopes, Laser Scanning Microscopy (LSM), Scanning Electron Microscopy (SEM), X-Ray Diffraction (XRD) and Raman Spectroscopy in the interpretation of pottery decoration techniques.</p> <p><i>Material Science and Archaeological Ceramics: Manufacturing and Material Properties of Ancient and Modern Ceramics:</i> The module sets the basis for a scientific understanding of ceramic as a material. It provides information about the raw materials as phases and the course of events leading to ceramics. It also gives an overview of mechanical and physical properties and teaches how they are measured and change with different type of treatments. The theoretical issues will be accompanied by practical work with clay-based materials, including an experimental firing at the Campus Galli site and characterisation at the CCA-BW</p> <p><i>Practicals in Biomolecular Archaeology:</i> students will gain practical experience in Biomolecular Archaeology, especially in laboratory and analytical methods. Introductory lectures will be followed by practical courses in: i) Organic residue analysis (ORA) comprising lectures on lipid chemistry, the decay and preservation of lipids, instrumentation (Gas Chromatography-Mass Spectrometry) and archaeological applications. Laboratory practicals include sampling of ceramics, lipid extraction and data analysis. 2) Introduction to the analysis of bone and teeth for stable isotopes (reconstruction of palaeo-nutrition and mobility), good practices in skeletal remains sampling and evaluation of organic component preservation.</p>		

<p>Qualification goals</p>	<p><i>Material Science and Archaeological Ceramics: Ancient Pottery and its Pigments:</i> At the end of the course the students will have: i) a good understanding of the foundations of the most established archaeometric techniques employed in the study of different types of pottery pigments and decoration, ii) practical experience of archaeometric techniques and their application to the study of pottery pigments and decoration, iii) an ability to design research projects that employ instrumental analyses to address archaeological questions.</p> <p><i>Material Science and Archaeological Ceramics: Manufacturing and Material Properties of Ancient and Modern Ceramics:</i> At the end of the course the students will have i) a good understanding of ceramics as a material and of the techniques employed to analyse ceramic properties, ii) practical experience in preparing materials for subsequent firing, and analytics for characterising ceramic properties.</p> <p><i>Practicals in Biomolecular Archaeology:</i> Students will gain theoretical and practical knowledge of two broadly used methodologies in palaeodietary studies, namely ORA and bulk stable isotope analysis, Good Laboratory Practice skills acquired through hands-on work in the laboratory, basic knowledge in the interpretation of lipid fragmentation patterns from mass spectra, and knowledge in data manipulation for the analysis of bulk stable isotope data.</p>								
<p>Prerequisites for the allocation of credits / grades (if necessary weighting)</p>	<p>Courses</p>	<p>Type of course</p>	<p>Status</p>	<p>CH</p>	<p>CP</p>	<p>Type of exam</p>	<p>Duration/Extent of exam</p>	<p>Grading System</p>	<p>Weighting</p>
	<p><i>Material Science and Archaeological Ceramics: Ancient Pottery and its Pigments</i></p>	<p>L</p>	<p>Op</p>	<p>1</p>	<p>3</p>	<p>WE</p>	<p>-</p>	<p>g</p>	<p>100</p>
	<p><i>Material Science and Archaeological Ceramics: Ancient Pottery and its Pigments</i></p>	<p>S</p>	<p>Op</p>	<p>2</p>	<p>3</p>				
	<p><i>Material Science and Archaeological Ceramics: Manufacturing and Material Properties of Ancient and Modern Ceramics</i></p>	<p>L</p>	<p>Op</p>	<p>2</p>	<p>3</p>	<p>WE</p>	<p>-</p>	<p>g</p>	<p>100</p>
	<p><i>Material Science and Archaeological Ceramics: Manufacturing and Material Properties of Ancient and Modern Ceramics</i></p>	<p>P</p>	<p>Op</p>	<p>2</p>	<p>3</p>				
	<p><i>Practicals in Biomolecular Archaeology</i></p>	<p>L</p>	<p>Op</p>	<p>1</p>	<p>6</p>	<p>WE</p>	<p>-</p>	<p>g</p>	<p>100</p>
	<p><i>Practicals in Biomolecular Archaeology</i></p>	<p>P</p>	<p>Op</p>	<p>3</p>					
<p>Module exam</p>	<p>Written exam, depending on the chosen classes.</p>								
<p>Study Requirement</p>	<p>Regular participation, reading and discussion of texts</p>								
<p>Applicability</p>	<p>M.Sc. ASHE; specialization Archaeometry, ASHE-importable</p>								
<p>Participation Prerequisites</p>	<p>Introduction to Archaeometry (ASHE-3b) (recommendation)</p>								

ASHE-6c: Special Topics in Geoarchaeology

Module number: ASHE-6c	Module Title: Special Topics in Geoarchaeology				Type of Module: Compulsory-Elective				
Credit Points (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH			Self-study: 120 h				
Duration of Module	1 semester								
Regular Cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Depends on the chosen classes.								
Module Content	<p>The students either take <i>Archaeological Deposits and Stratigraphy</i> (L+S) or <i>Experimental Archaeology</i> (L+E) which are offered in turn every other year. <i>Archaeological Deposits and Stratigraphy</i> takes a depositional approach to the study of archaeological sites, emphasizing the role of site-formation processes in the archaeological record. The course covers basic and advanced concepts of deposits and stratigraphy at the scale of the archaeological site. Key topics covered include:</p> <ul style="list-style-type: none"> • Archaeological stratigraphy of architectural and non-architectural sites • Natural processes of sedimentation at archaeological sites • Anthropogenic processes of sedimentation at archaeological sites • Diagenesis and post-depositional alteration • Approaches to studying and documenting archaeological stratigraphy <p><i>Experimental Archaeology</i> introduces students to the history and theory of experimental archaeology, and provides practical experience in developing research questions that can be addressed through archaeological experimentation. Together with the instructors, students will develop and carry out an archaeological experiment.</p>								
Qualification Goals	<p>By the end of <i>Archaeological Deposits and Stratigraphy</i>, students will gain expertise in natural and anthropogenic formation processes of archaeological sites, and will be able to independently assess and interpret stratigraphic and geoarchaeological data obtained during excavation. Through readings, discussion, and also hands-on exercises, students will gather practical experience in assessing the stratigraphy of archaeological sites and interpreting archaeological stratigraphy in terms of formation history and human activities.</p> <p>By the end of <i>Experimental Archaeology</i>, students will have a firm grasp of the theory of experimental archaeology and will have first-hand knowledge in developing and conducting an archaeological experiment. Students will gain practical knowledge in experiment design, data collection and data analysis.</p>								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Archaeological Deposits and Stratigraphy</i>	L	op	2	3	WE	-	g	100
	<i>Archaeological Deposits and Stratigraphy</i>	S	op	2	3				
	<i>Experimental Archaeology</i>	L	Op	2	3	OE	-	g	100
<i>Experimental Archaeology</i>	E	op	2	3					
Module exam	Depends on the chosen classes								
Study Requirement	Regular participation, reading and discussion of texts								
Applicability	M.Sc. ASHE; specialization Geoarchaeology, ASHE-importable								
Participation Prerequisites	Introduction to Geoarchaeology (ASHE-3c) (recommendation)								

ASHE-6d: Imaging and Morphometrics

Module number: ASHE-6d	Module Title: Imaging and Morphometrics		Type of Module: Compulsory-Elective						
Credit Points (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 30 h / 2 CH	Self-study: 150 h						
Duration of Module	1 semester								
Regular Cycle	Every summer semester								
Language	English								
Type of Lecture	Lecture and exercise								
Module Content	<ul style="list-style-type: none"> Basics of the application of imaging techniques in paleoanthropology Introduction to the methods of "Geometric Morphometrics" in paleoanthropology Introduction to the use of surface scanners and Microscribe Carrying out an independent project work using the methods of morphometry 								
Qualification Goals	<p>The students:</p> <ul style="list-style-type: none"> Can perform basic functions of the measuring devices used Have a basic knowledge of the methods of virtual paleoanthropology Are able to generate and edit data sets with imaging methods Can analyze and interpret virtual data sets using the "Geometric Morphometric" methods Problem-solving skills in relation to paleoanthropological issues Learning the ability to work in a team in practical work groups Independent acquisition of teaching content using practical examples Can present their own project and the methods used for it through an oral presentation 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Imaging and Morphometrics</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>-</i>	<i>-</i>	<i>-</i>	
	<i>Imaging and Morphometrics</i>	<i>E</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>30 min</i>	<i>g</i>	<i>100</i>
Module exam	The module exam is part of the exercise component.								
Study Requirement	Regular participation, independent project								
Applicability	M.Sc. ASHE; specialization Paleoanthropology, ASHE-importable								
Participation Prerequisites	Bachelor class: Morphometry, Epigenetics and applied statistics (Morphometrie, Epigenetik und angewandte Statistik) (recommendation)								

ASHE-6e: Advances in Archaeo- and Paleogenetics

Module number: ASHE-6e	Module title: Advances in Archaeo- and Palaeogenetics		Type of module: Compulsory-elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Summer term								
Language	English								
Learning- / Teaching forms	Lecture and Seminar								
Module content	Introduction to the content and methodology of Paleogenetics, especially with regard to archaeological and evolutionary questions. Topics on the analysis of ancient DNA, phylogenetics, evolutionary genetics and population and molecular genetic methods. Reading of key texts within Paleogenetics.								
Qualification goals	<ul style="list-style-type: none"> • Knowledge of the structure and characteristics of ancient DNA. • Knowledge and critical evaluation of analysis possibilities and characterization of ancient DNA. • Understanding and critical handling of Paleogenetic primary literature. • Understanding of source criticism and interpretation of Paleogenetic data in different archaeological contexts. • Independent learning of teaching content, especially through the reading of key texts. 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>SWS</i>	<i>ECTS points</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Archaeo and Paleogenetics</i>	L	c	2	3	WE	90 min	g	100
	<i>Current topics in Paleogenetics</i>	S	c	2	3				
Module exam	The module exam is part of the lecture component.								
Study Requirement	Regular participation to lectures and seminars, reading of texts, ungraded presentation.								
Applicability	M.Sc. ASHE, specialization Paleogenetics								
Participation Prerequisites	Introduction to Paleogenetics (ASHE-3e); Basic genetic knowledge - archaeological bachelor's degree with a minor in paleoanthropology or a biological minor or a biological bachelor's degree with additional archaeological knowledge. (recommendation)								

ASHE-6f: Stone Age Technology

Module number: ASHE-6f	Module title: Stone Age technology		Type of module: Compulsory-elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Combined lecture/exercise and more specialized additional practical exercises or seminars. The lecture/exercise part involves face-to-face learning with dedicated practical parts. The seminar and/or practical component encompasses taught and interactive elements, group learning, hands-on material work, potentially including reading and discussion of relevant literature and presentation of specific topics or own results from practical studies.								
Module content	This module is part of the specialization Stone Age Archaeology. It provides an in-depth overview on lithic and organic material culture of the global Stone Age with a focus on practical courses and analytical methods. The courses are partly or dominantly practical in nature and focus on methodological issues in Stone Age technology. Courses of the module focus on the application of standard and new methods, including experimental archaeology, 3D scanning, use-wear and residue studies (i.e. material culture lab). Proper handling of attendant equipment (microscopes, 3D scanner) will also be part of this module. An emphasis of the modules lies on stone tools as they are the most durable and frequent artefact category of the Stone Age. A combined lecture/exercise covers the various analytical methods and theoretical approaches towards studying lithic technology of the Paleolithic, Mesolithic and Neolithic including hands-on work with actual stone tool assemblages. Students can choose among a number of additional practical exercises or seminars that also examine the nature and methods of organic technology of the Stone Age, such as bone, antler, ivory or plant materials (e.g. wood), or experimental archaeology, use-wear and residue studies of lithic and organic technology.								
Qualification goals	Students acquire advanced and practical knowledge of lithic and organic material culture of the Stone Age. They understand the different find categories, relevant analytical methods for each and can apply these methods to material culture. Students will be enabled to critically reflect on the potentials and limits of different analytical methods and theoretical approaches for studying technology in the Stone Age and convey this information in oral form. They can conduct some independent research on Stone Age material culture and present this study in a talk.								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>SWS</i>	<i>ECTS points</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>6f-1: Lithic technology of the Stone Age</i>	<i>L / E</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>30</i>	<i>g</i>	<i>100</i>
	<i>6f-2: Seminar/Exercise Stone Age archaeology</i>	<i>S / E</i>	<i>c</i>	<i>2</i>	<i>3</i>				
Module exam	The module exam is part of the exercise component. After consultation a written exam is possible.								
Study Requirement	Regular participation to lectures and seminars, reading of texts.								
Applicability	M.Sc. ASHE, specialization Stone Age Archaeology								
Participation Prerequisites	Introduction to Stone Age Archaeology (ASHE-3f); Basic knowledge of terminology and methods in lithic and organic technology. (recommendation)								

ASHE-6g: Methods in Zooarchaeology

Module number: ASHE-6g	Module title: Methods in Zooarchaeology		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Lecture, exercise, lab practical								
Module content	<p>Practical experience in different methods that find application in zooarchaeology. <i>Bone Taphonomy</i> is offered every summer semester in even numbered years (2022, 2024, etc.). Classes will also be offered in Archaeo- and Paleoproteomics and Molecular Zooarchaeology.</p> <p>After individual consultation, imports are welcome. Students choose either <i>Bone Taphonomy (L+E)</i>; or e.g. <i>Imaging and Morphometrics (L+E) (ASHE-6d Import)</i>; or <i>Advanced FTIR (ASHE-7/9c Import)</i> and <i>Terrestrial Ecosystems Lab (M401 Import)</i>.</p> <p>Depending on chosen class e.g.:</p> <ul style="list-style-type: none"> Recognize and distinguish between different kinds of taphonomic damage on bones Isotope laboratory, preparation of fossil material for geochemical isotope analyses Basics of the application of imaging techniques and introduction to the methods of "Geometric Morphometrics" 								
Qualification goals	<ul style="list-style-type: none"> Students will be exposed to different methods that find application in zooarchaeology Students will critically examine the different methods and learn to evaluate suitability of methods Students will deepen knowledge in chosen methods and know how to apply them in future projects 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>ECTS points</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	e.g. <i>Bone Taphonomy</i>	L	op	2	3	-	-	-	100
	e.g. <i>Bone Taphonomy</i>	E	op	2	3	WE	-	g	
Module exam	Depends on chosen courses.								
Study Requirement	Regular participation, depends on chosen courses.								
Applicability	M.Sc. ASHE, specialization Zooarchaeology								
Participation Prerequisites	Introduction to Zooarchaeology (ASHE-3g) (recommendation)								

ASHE-7a: Paleoenvironments & Ancient Societies

Module number: ASHE-7a	Module title: Paleoenvironments & Ancient Societies: Quaternary Ecology and Environmental Archaeology		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Seminar, Lecture and Exercise								
Module content	<p>The seminar and lecture <i>Quaternary Ecology & Environmental Archaeology</i> focusses on the concept that human past cannot be understood without recognizing that cultural systems are inseparably linked to their environments and therefore deals e.g. with the theoretical background of the mechanisms behind climate and environmental change of the earth system throughout the Quaternary era, the ecological consequence of climate change for humans, illustrated with examples from current environmental research at important archaeological sites, the relationship between human evolution and environmental change with an emphasis on the relevance of the Quaternary paleoenvironmental record for current climate issues incl. comparisons with future climate trends.</p> <p>The <i>Archaeopalynology</i> exercise deals with pollen analysis, one of the important palaeoecological proxies, and with its application to archaeological research questions, e.g. taphonomic processes in sediments affecting pollen preservation; laboratory work related to pollen, its identification and basic statistical evaluation, possibilities and limitations of the on-site and of-site pollen records will be discussed in view of the practical field work and interpretation, involving case studies.</p>								
Qualification goals	<ul style="list-style-type: none"> • Knowledge on the environmental history of the Pleistocene and Holocene and its possible linkages with human evolution and social developments • Awareness of the basic driving forces of environmental change and site formation • Ability to critically assess climatic reconstructions and connect them to the particular archaeological sites and contexts • Basic knowledge of field and laboratory methods in palynology (obtaining pollen samples through different coring equipment, pollen extraction from sediments and identification of main pollen types) • Ability to perform basic interpretation of pollen evidence and to achieve its linkage to archaeological contexts and research questions 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Quaternary Ecology & Environmental Archaeology</i>	S/L	C	2	3	OE/WE	-	g	50
	<i>Archaeopalynology</i>	E	C	2	3	OE	-	g	50
Module exam	The module exam consists of marked presentations and contributions within the seminar or lecture. The exercise part will be evaluated through an oral practical exam.								
Study Requirement	Regular participation to lectures and seminars, reading of texts.								
Applicability	M.Sc. ASHE, specialization Archaeobotany								
Participation Prerequisites	Introduction to Archaeobotany and Paleoethnobotany (ASHE-3a) (recommendation)								

ASHE-7b: Special Topics in Archaeometry II

Module number: ASHE-7b	Module title: Special Topics in Archaeometry II		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Depends on the chosen classes.								
Module content	<p>The students either take <i>Archaeometallurgy</i> (L+S), <i>Silica Rocks as Raw Materials</i> (L+S+F) or <i>Stable Isotopes in Bioarchaeology</i> (L+S+P).</p> <p><i>Metallurgy</i> comprises: an introduction to physical metallurgy (phase diagrams, alloy theory, plastic deformation and recovery, solid-state transformations), a review on research history and archaeometallurgical practices, mining and pyrometallurgical processes, alloying and metal processing (casting, forming, surface treatments, etc.) within regional and chronological contexts.</p> <p><i>Silica Rocks as Raw Materials</i> comprises: mineralogy, structure, chemistry and crystallography of silica rocks, formation background and geology, practical knowledge for provenance studies of silica rocks, material properties, thin section microscopy and hand specimen rock determination.</p> <p><i>Stable Isotopes in Bioarchaeology</i>: The goal of this course is to provide students with practical and theoretical background in the field of isotopic studies on biological material from archaeological contexts. The theoretical part includes an introduction to common organic material used for isotopic tracking of environment, diet and mobility, the evaluation of conditions of preservation of organic material, and a survey of bulk stable isotope analysis commonly used for research in palaeodiet and mobility. The practical part includes different tasks such as laboratory work (sampling strategy, analytical procedure, storing management, ethical guidelines), survey of case studies (critical reading of international publications) and assessment of methodology (project design based on case study).</p>								
Qualification goals	<p><i>Archaeometallurgy</i>: Basic understanding of pre-industrial metal mining and metallurgy, identification of metallurgical debris (slag, technical ceramics, specific tools etc.) to reconstruct metallurgical processes.</p> <p><i>Silica Rocks as Raw Materials</i>: knowledge of: Rock determination, analytical methods, rock classifications, basic geology and mineralogy, analysis methodology.</p> <p><i>Stable Isotopes in Bioarchaeology</i>: By the end of the course, students will have a comprehensive theoretical and practical knowledge of preservation evaluation, sampling strategy and bulk stable isotope analysis.</p>								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Archaeometallurgy</i>	L	Op	2	3	WE or OE	-	g	100
	<i>Archaeometallurgy</i>	S	Op	2	3	WE	-	g	100
	<i>Silica Rocks as Raw Materials</i>	L	Op	1	1.5	WE	-	g	100

	<i>Silica Rocks as Raw Materials</i>	S	Op	2	3				
	<i>Silica Rocks as Raw Materials</i>	F	Op	1	1.5				
	<i>Stable Isotopes in Bioarchaeology</i>	L	Op	2	6	WE	-	g	100
	<i>Stable Isotopes in Bioarchaeology</i>	S	Op	1					
	<i>Stable Isotopes in Bioarchaeology</i>	P	Op	1					
Module exam	Depends on the chosen classes.								
Study Requirement	Regular participation, depends on chosen courses.								
Applicability	M.Sc. ASHE, specialization Archaeometry, ASHE-importable								
Participation Prerequisites	Introduction to Archaeometry (ASHE-3b) (recommendation)								

ASHE-7c: Methods in Geoarchaeology I

Module number: ASHE-7c	Module Title: Methods in Geoarchaeology I		Type of Module: Compulsory-Elective
Credit Points (ECTS)	6		
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH	Self-study: 120 h
Duration of Module	1 semester		
Regular Cycle	Every summer semester		
Language	English		
Learning- / Teaching forms	Lecture, seminar, exercise, lab practical, field (depends on chosen class)		
Module Content	<p>We offer different classes on a broad range of methods that find application in Geoarchaeology with special focus on microarchaeological methods and sampling. <i>Archaeological Micromorphology (L+E)</i>, <i>Case Studies in Micromorphology (E)</i>, <i>Field and Laboratory Techniques in Geoarchaeology (F+P)</i>, <i>Microanalytics (L+E/P)</i>, and <i>Advanced FTIR (S/E)</i> are offered in at least a three semester rotation. Classes not taken for this module should be taken for module ASHE-9c for students specializing in Geoarchaeology.</p> <p><i>Archaeological Micromorphology (L+E)</i>: Introduction to micromorphology and thin-section description and analysis covering basics of microscopy and petrographic microscopy, standard thin-section descriptive terminology, identification of common components and features of archaeological thin sections, identification and interpretation of microfabrics of archaeological deposit, concepts of microfacies and microfacies analysis.</p> <p><i>Case Studies in Micromorphology (E)</i>: Weekly, students will read a set of papers on a specific archaeological site or topic and will then observe the thin sections used in the studies. The course employs the large geoarchaeological collection as the basis for the selected case studies.</p> <p><i>Field and Laboratory Techniques in Geoarchaeology (F+P)</i>: Laboratory and field-based course to introduce students to the practical, methodological aspects of collecting and analyzing geoarchaeological data, incl. documenting and describing archaeological profiles, collecting geoarchaeological samples on site and on the landscape, processing samples for granulometry and elemental analysis, processing samples for thin-section production, digitization of geoarchaeological thin sections and data, database generation and management.</p> <p><i>Microanalytics (L+E/P)</i>: This course introduces students to a range of microscopic analytical techniques as applied in archaeological and geoscientific contexts that include FTIR/μFTIR, XRF/μXRF and XRD/μXRD, SEM.</p> <p><i>Advanced FTIR (S/E)</i>: This course deepens the knowledge of FTIR/μFTIR application e.g. in Zooarchaeology, including advanced data processing using statistical software.</p>		
Qualification Goals	Through completion of the module, students will gain expertise in a range of geoarchaeological approaches and will be familiar with the theoretical and practical aspects of the various techniques. They will obtain expertise in the operation of selected instruments and will be able to independently collect, process and analyze geoarchaeological data from archaeological and geological materials.		

	Title	Type of Lecture	Status	CH	CP	Type of Assessment	Duration of Assessment	Grading System	Calculation Module Grade
Prerequisites for the allocation of credits/grades (if necessary weighting)	Archaeological Micromorphology	L	op	2	3	WE	90	g	100
	Archaeological Micromorphology	E	op	2	3				
	Case Studies in Micromorphology	E	op	2	3	OE	-	g	50
	Laboratory techniques in Geoarchaeology	P	op	2	3	OE	-	g	100
	Field techniques in Geoarchaeology	F	op	2	3				
	Microanalytics	L	op	2	3	OE	-	g	100
	Microanalytics	E/P	op	2	3				
	Advanced FTIR	S/E	op	2	3	WE	-	g	50
Module exam	Depends on chosen classes								
Study Requirement	Depends on chosen classes								
Applicability	M.Sc. ASHE; specialization Geoarchaeology, ASHE-importable								
Participation Prerequisites	Introduction to Geoarchaeology (ASHE-3c), depends on chosen class. (recommendation)								

ASHE-7d: Human Fossil Evolution

Module number: ASHE-7d	Module title: Human Fossil Evolution				Type of module: Compulsory-Elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h		Contact time: 60 h / 4 SWS		Private study: 120 h				
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Lecture and seminar								
Module content	Overview of the Plio- and Pleistocene hominin fossil record and models of hominin phylogeny. Review of 'systems' change in human evolution: evolution of bipedalism; evolution of primate and human brain and body size; evolution of cognition and language; life history theory; evolution of primate and human life histories; tool use and technology; primate diets and human subsistence; hunting vs. scavenging; evolution of cooking; primate and human social behavior, aggression and cooperation; etc.								
Qualification goals	<ul style="list-style-type: none"> Detailed insights into the biological and cultural evolutionary history of the hominin lineage Expertise of evolutionary models leading to major primate and human biological and behavioral adaptations Knowledge of current research and debates surrounding these topics 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Title</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Evolution of Human Biology and Behavior</i>	L	C	2	3	WE	-	g	100
	<i>Evolution of Human Biology and Behavior</i>	S	C	2	3				
Module exam	The module grade derives from a term paper.								
Study Requirement	Regular participation to lectures and seminars, ungraded presentation in seminar.								
Applicability	M.Sc. ASHE, specialization Paleoanthropology								
Participation Prerequisites	Introduction to Paleoanthropology (ASHE-3d) (recommendation)								

ASHE-7e: Laboratory Methods in Archaeo- and Paleogenetics

Module number: ASHE-7e	Module title: Laboratory Methods in Archaeo- and Palaeogenetics				Type of module: Compulsory-Elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h			Contact time: 60 h / 4 SWS		Private study: 120 h			
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Exercise								
Module content	<p>Characterization of ancient DNA using historical and Pleistocene specimens. Learn the techniques required for the characterization of fossil DNA (DNA extraction, preparation of DNA libraries for high-throughput sequencing, quantification of DNA libraries). Introduction to bioinformatics and analysis of high-throughput sequencing data. Students have to write a detailed report summarizing the laboratory protocols and techniques they have learned during the exercise.</p>								
Qualification goals	<ul style="list-style-type: none"> • Knowledge of the basic principles of the methods used in Paleogenetics, as well as the methods used in the analysis of high-throughput sequencing data. • Practical experience in the investigation, extraction and analysis of ancient DNA. • Acquisition of the ability to interpret data. • Acquisition of practical experience in the analysis of high-throughput sequencing data. • Learning the ability to work in teams in practical working groups. • Independent development of teaching content using practical examples. 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Title</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	Ancient DNA clean lab	E	c	2	3	WE	-	g	100
	Ancient DNA computation lab	E	c	2	3				
Module exam	Module grade derives from written lab report.								
Study Requirement	Regular participation.								
Applicability	M.Sc. ASHE, specialization Paleogenetics								
Participation Prerequisites	Advances in Archaeo- and Paleogenetics (ASHE-6e), laboratory experience. (recommendation)								

ASHE-7f: Cultural Evolution

Module number: ASHE-7f	Module title: Cultural evolution		Type of module: Compulsory-Elective						
Credits Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Introductory lecture and more specialized seminar(s). Lectures predominantly involve face-to-face learning with attendant written assignments (which need to get a passing grade for credits). The seminar component encompasses taught and interactive elements, including reading and discussion of relevant literature and student-led presentation of specific topics (written and/or in person, depending on chosen course).								
Module content	This module is part of the specialization Stone Age Archaeology. The lecture provides an introductory course and thematic overview of the evolution of culture and cognition, especially in primates and hominins and modern humans. This part includes coverage of basic terminology, central issues, analytical methods, interpretative frameworks and current research, encompassing topics such as cultural transmission, social learning mechanisms and cognitive capacities in a cross-species framework. A more specialized, optional seminar (7f-2) provides a closer and "bottom-up" look on the evolution of culture in animals and humans via pre-modern hominins. As alternative, students can choose from a pool of varying courses at the University but which must cover specific spatio-temporal scales and thematic issues of cultural evolution and cognition in hominins of the Stone Age in the Pleistocene and early Holocene (7f-3).								
Qualification goals	Students learn basic knowledge and terminology of cultural evolution and cultural cognition. They get to understand the different topics, analytical methods and overarching research questions pursued in this field of study. Students will be enabled to critically reflect on the data, methods, theory and interpretations commonly employed in evolutionary studies of culture and cognition in hominins and other animals. They will be able to integrate current research into the history and issues of the field and will be able to develop and independently pursue advanced research questions of cultural evolution and cognition in written (and oral, depending on specifics of optional course chosen) presentation.								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>7f-1: The Evolution of Culture and Cognition</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>ca.5-10 p.</i>	<i>g</i>	<i>100</i>
	<i>7f-2: How cultures evolve</i>	<i>S</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	<i>7f-3: Optional course related to cultural evolution</i>	<i>S or L</i>	<i>op</i>	<i>3</i>	<i>3</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Module exam	The main module exam (term paper) is part of the lecture component (7f-1).								
Study Requirement	Regular participation, reading and discussion of texts, ungraded presentation.								
Applicability	M.Sc. ASHE, specialization Stone Age Archaeology, ASHE-importable								
Participation Prerequisites	None.								

ASHE-7g: Zooarchaeology and Human Evolution

Module number: ASHE-7g	Module title: Zooarchaeology and Human Evolution		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every summer semester								
Language	English								
Learning- / Teaching forms	Lecture and seminar								
Module content	<p>In this module, students will deepen their understanding in current topics in human evolution. <i>Diet and Subsistence (L+S)</i> will be offered in summer semesters in odd numbered years (2021, 2023, 2025, etc.). Hominin diets from the Early Stone Age through Bronze Age with focus on zooarchaeological, archaeobotanical, and biomolecular studies in relation to questions about human nutrition and subsistence in prehistory are discussed.</p> <p>After individual consultation, imports are welcome, e.g. <i>ASHE-8f Stone Age Economics (L+S)</i>; or <i>ASHE-9f Stone Age Society and Ideology (L+S)</i></p>								
Qualification goals	<ul style="list-style-type: none"> • Knowledge of basic zooarchaeological and archaeobotanical problems in prehistory • Understanding and critical assessment of primary literature • Acquisition of practical experience in oral presentations 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>e.g. Diet and Subsistence</i>	<i>L</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>90</i>	<i>g</i>	<i>100</i>
	<i>e.g. Diet and Subsistence</i>	<i>S</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>-</i>	<i>-</i>	<i>-</i>	
Module exam	Depends on chosen courses.								
Study Requirement	Regular participation, depends on chosen courses.								
Applicability	M.Sc. ASHE, specialization Zooarchaeology, ASHE-importable								
Participation Prerequisites	None.								

ASHE-8a: Anthracology

Module number: ASHE-8a	Module title: Anthracology: Humans and their environment				Type of module: Compulsory-elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h		Contact time: 60 h / 4 SWS			Private study: 120 h			
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Seminar and Exercise								
Module content	<ul style="list-style-type: none"> • Introduction into archaeological questions that can be solved through the analysis of wood charcoals • Gaining insight into anthracological methods • Introduction into wood anatomy • Practical knowledge of wood anatomy • Practical knowledge of anthracological techniques beyond the identification of charcoals, such as e.g. diameter measurements and annual ring width measurements • Quantification in anthracology 								
Qualification goals	<ul style="list-style-type: none"> • Gaining knowledge of the anatomy of wood • Ability to scientifically examine wood charcoal/wood. • In depth knowledge and understanding of charcoal as archaeological and palaeoenvironmental archives • Learning teamwork in small groups • Being able to critically read and evaluate anthracological studies 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Anthracology seminar</i>	<i>S</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>30</i>	<i>g</i>	<i>50</i>
	<i>Anthracological laboratory</i>	<i>E</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>30</i>	<i>g</i>	<i>50</i>
Module exam	The module exam consists of marked presentations and contributions within the seminar. Charcoal identification skills will be evaluated through a 30-minute oral practical exam.								
Study Requirement	Regular participation, reading and discussion of texts.								
Applicability	M.Sc. ASHE, specialization Archaeobotany, ASHE-importable								
Participation Prerequisites	None								

ASHE-8b: Organic Materials in Archaeological Contexts

Module number: ASHE-8b	Module title: Organic Materials in Archaeological Contexts		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lectures and seminars								
Module content	Lectures will provide a broad overview of current analytical methods applied to the study of organic materials recovered from archaeological contexts, and their applications. The course will focus on the composition of different organic materials, methods of analysis, and taphonomic processes. The scientific basis in the application of the different methodologies will be covered, together with instrumental techniques and methodological advantages and limitations. Seminars will focus on the application of the methodologies covered during the lectures through reading and critiques of published literature.								
Qualification goals	By the end of the course, students will have a broad overview of the analytical methods available to study a wide range of organic materials. Students will have a good theoretical knowledge of the science behind the different methods applied and their archaeological applications. Through the paper critiques during the seminars, students will develop a critical awareness of the interpretation of the data acquired.								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Organic Materials in Archaeological Contexts</i>	L	Op	2	3	WE	-	g	50
	<i>Organic Materials in Archaeological Contexts</i>	S	Op	2	3	OE	-	g	50
Module exam	This module is assessed through the completion of an assignment and a presentation.								
Study Requirement	Regular participation, reading and discussion of texts.								
Applicability	M.Sc. ASHE, specialization Archaeometry, ASHE-importable								
Participation Prerequisites	Introduction to Archaeometry (ASHE-3b) (recommendation)								

ASHE-8c: Interdisciplinary Geoarchaeology

Module number: NWA-8c	Module title: Interdisciplinary Geoarchaeology		Type of module: Compulsory-Elective
Credit Points (ECTS)	6		
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h
Duration of module	1 semester		
Regular cycle	Every winter semester		
Language	English		
Learning- / Teaching forms	Depends on chosen class		
Module content	After individual consultation one compulsory-elective module import from one of the other six specialisations Zooarchaeology, Palaeoanthropology, Archaeobotany, Paleogenetics, Archaeometry, Stone Age Archaeology (see "Prerequisite"), e.g. <i>ASHE-8a Anthracology</i> , <i>ASHE-8b Organic Materials in Archaeological Contexts</i> , <i>ASHE-8f Stone Age economics</i> , <i>ASHE-9b Material Science and Archaeological Ceramics: Ceramic Petrography and Geochemistry</i> .		
Qualification goals	<ul style="list-style-type: none"> • Knowledge of the basics in one of the fields of Zooarchaeology, Palaeoanthropology, Archaeobotany, Paleogenetics, Archaeometry, Stone Age Archaeology. • Linking the fields of Zooarchaeology, Palaeoanthropology, Archaeobotany, Paleogenetics, Archaeometry, Stone Age Archaeology with questions of Geoarchaeology. • Learn to work critically and develop a sound, professional and interdisciplinary judgment. • Working in a team with researchers from different disciplines 		
Prerequisites for the allocation of credits / grades (if necessary weighting)	Optional written exam examination, assignment, report, lab protocol or seminar presentation, depending on the examination performance specified in the module handbook. The courses listed under "Module Descriptions" of the specialisations Zooarchaeology, Palaeoanthropology, Archaeobotany, Paleogenetics, Archaeometry, Stone Age Archaeology (<i>ASHE-6a-g – ASHE-9a-g</i>) of at least 6 ECTS can be credited. A completed course unit (i.e. a module) should be taken in order to achieve the corresponding qualification goals of the modules.		
Module exam	Regular participation, depending on the chosen course.		
Participation Prerequisites	Prior to participation in interdisciplinary courses, the module-related learning objectives must be confirmed by the Head of Geoarchaeology in the sense that they can be used for the specialization in Geoarchaeology.		

ASHE-8d: Human Anatomy – Soft Tissue

Module number: ASHE-8d	Module Title: Human Anatomy – Soft Tissue		Type of Module: Compulsory-Elective						
Credit Points (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH	Self-study: 120 h						
Duration of Module	1 semester								
Regular Cycle	Every summer semester								
Language	English								
Type of Lecture	Lecture and exercise								
Module Content	<ul style="list-style-type: none"> • Overview of the anatomy of the different systems of the human body • Detailed information on anatomical terminology of anatomical structures 								
Qualification Goals	<ul style="list-style-type: none"> • Knowledge of the anatomy of the different systems of the human body • Knowledge of the anatomical terminology of the different organs and structures within the human body's systems 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Human Anatomy – Soft Tissue</i>	<i>E</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>90 min</i>	<i>g</i>	<i>100</i>
	<i>Human Anatomy – Soft Tissue</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>				
Modul exam	Written exam covering exercise component.								
Study Requirement	Regular participation								
Applicability	M.Sc. ASHE, specialization Paleoanthropology								
Participation Prerequisites	Introduction to Paleoanthropology (ASHE-3d) (recommendation)								

ASHE-8e: Interdisciplinary Paleogenetics

Module number: NWA-8e	Module title: Interdisciplinary Paleogenetics		Type of module: Compulsory-Elective
Credit Points (ECTS)	6		
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h
Duration of module	1 semester		
Regular cycle	Every winter semester		
Language	English		
Learning- / Teaching forms	Depends on chosen class		
Module content	After individual consultation one compulsory-elective module from one of the other six specialisations Zooarchaeology, Palaeoanthropology, Archaeobotany, Geoarchaeology, Archaeometry, Stone Age Archaeology (see "Prerequisite").		
Qualification goals	<ul style="list-style-type: none"> • Knowledge of the basics in one of the fields of Zooarchaeology, Palaeoanthropology, Archaeobotany, Geoarchaeology, Archaeometry, Stone Age Archaeology. • Linking the fields of Zooarchaeology, Palaeoanthropology, Archaeobotany, Geoarchaeology, Archaeometry, Stone Age Archaeology with questions of Palaeogenetics. • Learn to work critically and develop a sound, professional and interdisciplinary judgment. 		
Prerequisites for the allocation of credits / grades (if necessary weighting)	<p>Optional written exam examination, assignment, report, lab protocol or seminar presentation, depending on the examination performance specified in the module handbook.</p> <p>The courses listed under "Module Descriptions" of the specialisations Zooarchaeology, Palaeoanthropology, Archaeobotany, Geoarchaeology, Archaeometry, Stone Age Archaeology (<i>ASHE-6a-g – ASHE-9a-g</i>) of at least 6 ECTS can be credited. A completed course unit (i.e. a module) should be taken in order to achieve the corresponding qualification goals of the modules.</p>		
Module exam	Regular participation, depending on the chosen course.		
Participation Prerequisites	Prior to participation in interdisciplinary courses, the module-related learning objectives must be confirmed by the Head of Archaeo- and Paleogenetics in the sense that they can be used for the specialization in Paleogenetics.		

ASHE-8f: Stone Age Economics

Module number: ASHE-8f	Module title: Stone Age economics		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester (colloquium 3 semesters)								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Overview lecture/seminar and more specialized seminar. The overview lecture/seminar predominantly involves face-to-face learning with potential attendant written assignments and an interactive component. The colloquium component involves attendance of diverse research talks by leading scientists in the field of Stone Age Archaeology. The colloquium has to be attended for 3 semesters.								
Module content	Combined taught courses and seminars on raw material economy, landuse strategies, technological organization, mobility and subsistence patterns (e.g. hunting and gathering; agriculture and domestication) in the Stone Age. The lecture/seminar component provides an overview on diachronic changes and current issues in various topics of Stone Age economics. Basic terminology, research history, analytical methods, theoretical approaches (e.g. behavioral ecology; organization of technology) and case studies are covered with a focus on Eurasia and Africa. Different temporal perspectives, geographical areas and topics are covered by a more specialized seminar with a potential practical component. After individual consultation, imports are welcome, e.g. from the specialization Zooarchaeology (ASHE-6g-9g) and Archaeobotany (ASHE-6a-9a).								
Qualification goals	Students learn advanced knowledge of various aspects of Stone Age economics. They understand different economic aspects of Stone Age societies and overarching research questions pursued in this field of study. Students will be enabled to critically reflect on the data, methods, theory and interpretations commonly employed in archaeological research of Stone Age economics. They can integrate current research into the history and issues of the field and are able to develop and independently pursue advanced research questions of the Stone Age in written and oral presentation.								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>8f-1: Stone Age economics</i>	<i>L / S</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>Ca. 10-15 p.</i>	<i>g</i>	<i>100</i>
	<i>8f-2: SAA Colloquium</i>	<i>C</i>	<i>c</i>	<i>2</i>	<i>3</i>				
Module exam	The module exam is part of the lecture/seminar component.								
Study requirement	Regular participation, reading and discussion of texts.								
Application	M.Sc. ASHE; specialization Stone Age Archaeology, ASHE-importable								
Participation Prerequisites	Participation in ASHE-3f Stone Age Archaeology (recommendation)								

ASHE-8g: Zooarchaeology and the Environment

Module number: ASHE-8g	Module title: Zooarchaeology and the Environment				Type of module: Compulsory-Elective							
Credit Points (ECTS)	6											
Workload - Contact time - Private study	Workload: 180 h		Contact time: 60 h / 4 SWS			Private study: 120 h						
Duration of module	1 semester											
Regular cycle	Every winter semester											
Language	English											
Learning- / Teaching forms	Lecture and Lab											
Module content	<p>Students either deepen their knowledge in Microfauna:</p> <ul style="list-style-type: none"> • Microfauna from archaeological contexts, taxonomy, methodology, taphonomy, biochronology, paleoclimatic and paleoenvironmental reconstructions, interaction microfauna/humans. <p>After individual consultation, imports are welcome; e.g. <i>M403 Paleoecology of Terrestrial Ecosystems (L+S+E)</i> (from Biogeology) or <i>Quaternary Ecology & Environmental Archaeology (ASHE-7a)</i>:</p> <ul style="list-style-type: none"> • Important characteristics of terrestrial ecosystems nowadays and in the past • Description of the main approaches (autoecology, synecology, geochemical tracers) • Taphonomy, diagenesis and palaeoecology of terrestrial ecosystems 											
Qualification goals	<ul style="list-style-type: none"> • Knowledge how to recover, classify and study microfauna remains (micromammals, birds, fishes, amphibians and reptiles) • Lab work studying modern and old material from real archaeological contexts • Students are familiar with the history of life on land and can apply the methods used to reconstruct this history. • They have the ability to critically assess specialized literature related to this field and to appropriately present research topics in written and oral form. • Knowledge how to prepare a report 											
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>				<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>e.g. Microfauna from archaeological contexts</i>				<i>L</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>-</i>	<i>g</i>	<i>100</i>
	<i>e.g. Lab work. Modern and archaeological Microfauna material</i>				<i>E</i>	<i>op</i>	<i>2</i>	<i>3</i>				
Module exam	Depends on the chosen classes											
Study requirement	Depends on the chosen classes											
Applicability	M.Sc. ASHE; specialization Zooarchaeology											
Participation Prerequisites	None											

ASHE-9a: Interdisciplinary Archaeobotany

Module number: ASHE-9a	Module title: Interdisciplinary Archaeobotany		Type of module: Compulsory-Elective
Credit Points (ECTS)	6		
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h
Duration of module	1 semester		
Regular cycle	Every winter semester		
Language	English		
Learning- / Teaching forms	Elective import modules in agreement with the main field of research interest (to be previously discussed with the thesis supervisor)		
Module content	<p>After individual consultation one compulsory-elective module import from one of the other six specialisations Zooarchaeology, Palaeoanthropology, Geoarchaeology, Paleogenetics, Archaeometry, Stone Age Archaeology (see "Prerequisite"); or from other institutes, e.g.:</p> <ul style="list-style-type: none"> • Cultural line: <ul style="list-style-type: none"> - ASHE-7f Cultural Evolution Import from "Stone Age Archaeology" - ASHE-9f Stone Age society & ideology Import from "Stone Age Archaeology" - Import lecture from the archaeologies, i.e. time and region-specific lecture offered at the PhilFak or MNF (Neolithic Archaeology, Bronze Age Archaeology, Near Eastern Archaeology seminar (partially in English)) • Environmental line: <ul style="list-style-type: none"> - Palaeoecology of Terrestrial Ecosystems (M 403) - Environmental Isotope Chemistry (M 208) - Botany (Bio 104; in German) - Plant Ecology (Bio-3068) - Paleobotany/Palynology (M 503) • Methods line: <ul style="list-style-type: none"> - Isotope Geochemistry Import from Geosciences to cover the full background of stable isotope application for addressing questions on ancient agriculture - ASHE-7/9c Methods in Geoarchaeology I/II: Selected topics in micromorphology, involving practical experience in working with FTIR, e.g. phytolith analysis) - ASHE-6d Imaging and Morphometrics Import from Palaeoanthropology 		
Qualification goals	<ul style="list-style-type: none"> • Widening the background knowledge for investigating a particular question in the master thesis by visiting courses or the cultural and/or environmental line • Widening the methods spectrum and developing interdisciplinary approaches by visiting a course of the methods line 		
Prerequisites for the allocation of credits / grades (if necessary weighting)	<p>Optional written exam examination, assignment, report, lab protocol or seminar presentation, depending on the examination performance specified in the module handbook.</p> <p>The courses listed under "Module Descriptions" of the specialisations Zooarchaeology, Palaeoanthropology, Paleogenetics, Geoarchaeology, Archaeometry, Stone Age Archaeology (ASHE-6a-g – ASHE-9a-g) of at least 6 ECTS can be credited. A completed course unit (i.e. a module) should be taken in order to achieve the corresponding qualification goals of the modules.</p>		
Module exam	The module exam is part of one of the import classes.		
Study requirement	Depends on chosen classes.		
Applicability	M.Sc. ASHE, specialization Archaeobotany		
Participation Prerequisites	Depends on chosen classes.		

ASHE-9b: Material Science and Archaeological Ceramics: Ceramic Petrography and Geochemistry

Module number: ASHE-9b	Module title: Material Science and Archaeological Ceramics: Ceramic Petrography and Geochemistry		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h/ 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lectures and practicals								
Module content	This module provides a broad introduction to the technological study of ceramics in archaeology through a material science approach and demonstrates their role in interpreting various aspects of past societies. This module also provides in depth training in the principles of thin section ceramic petrography and its role alongside instrumental geochemistry in the interpretation of pottery provenance and manufacturing technology.								
Qualification goals	At the end of the module the students will have: i) a good understanding of the foundations of the most established archaeometric techniques employed to analyze ceramic, ii) practical experience of ceramic petrography and instrumental geochemistry, and their application and data processing, iii) the ability to design research projects that employ instrumental analyses to address archaeological questions.								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Title</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Material Science and Archaeological Ceramics: Ceramic Petrography and Geochemistry</i>	L	Op	2	3	OE	-	g	50
	<i>Material Science and Archaeological Ceramics: Ceramic Petrography and Geochemistry</i>	S	Op	2	3	WE	120	g	50
Module exam	The module assessment is part on the lecture and practical components.								
Study Requirement	Regular participation, reading and discussion of texts.								
Applicability	M.Sc. ASHE; specialization Archaeometry, ASHE-importable								
Participation Prerequisites	Introduction to Archaeometry (ASHE-3b) (recommendation)								

ASHE-9c: Methods in Geoarchaeology II

Module number: ASHE-9c	Module Title: Methods in Geoarchaeology II		Type of Module: Compulsory-Elective
Credit Points (ECTS)	6		
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH	Self-study: 120 h
Duration of Module	1 semester		
Regular Cycle	Every winter semester		
Language	English		
Learning- / Teaching forms	Lecture, seminar, exercise, lab practical, field (depends on chosen class)		
Module Content	<p>We offer different classes on a broad range of methods that find application in Geoarchaeology with special focus on microarchaeological methods and sampling. <i>Archaeological Micromorphology (L+E)</i>, <i>Case Studies in Micromorphology (E)</i>, <i>Field and Laboratory Techniques in Geoarchaeology (F+P)</i>, <i>Microanalytics (L+E/P)</i>, and <i>Advanced FTIR (S/E)</i> are offered in at least a three semester rotation. Classes not taken for this module should be taken for module ASHE-7c for students specializing in Geoarchaeology.</p> <p><i>Archaeological Micromorphology (L+E)</i>: Introduction to micromorphology and thin-section description and analysis covering basics of microscopy and petrographic microscopy, standard thin-section descriptive terminology, identification of common components and features of archaeological thin sections, identification and interpretation of microfabrics of archaeological deposit, concepts of microfacies and microfacies analysis.</p> <p><i>Case Studies in Micromorphology (E)</i>: Weekly, students will read a set of papers on a specific archaeological site or topic and will then observe the thin sections used in the studies. The course employs the large geoarchaeological collection as the basis for the selected case studies.</p> <p><i>Field and Laboratory Techniques in Geoarchaeology (F+P)</i>: Laboratory and field-based course to introduce students to the practical, methodological aspects of collecting and analyzing geoarchaeological data, incl. documenting and describing archaeological profiles, collecting geoarchaeological samples on site and on the landscape, processing samples for granulometry and elemental analysis, processing samples for thin-section production, digitization of geoarchaeological thin sections and data, database generation and management.</p> <p><i>Microanalytics (L+E/P)</i>: This course introduces students to a range of microscopic analytical techniques as applied in archaeological and geoscientific contexts that include FTIR/μFTIR, XRF/μXRF and XRD/μXRD, SEM.</p> <p><i>Advanced FTIR (S/E)</i>: This course deepens the knowledge of FTIR/μFTIR application e.g. in Zooarchaeology, including advanced data processing using statistical software.</p>		
Qualification Goals	Through completion of the module, students will gain expertise in a range of geoarchaeological approaches and will be familiar with the theoretical and practical aspects of the various techniques. They will obtain expertise in the operation of selected instruments and will be able to independently collect, process and analyze geoarchaeological data from archaeological and geological materials.		

	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Archaeological Micromorphology</i>	<i>L</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>90</i>	<i>g</i>	<i>100</i>
	<i>Archaeological Micromorphology</i>	<i>E</i>	<i>op</i>	<i>2</i>	<i>3</i>				
	<i>Case Studies in Micromorphology</i>	<i>E</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>-</i>	<i>g</i>	<i>50</i>
	<i>Laboratory techniques in Geoarchaeology</i>	<i>P</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>-</i>	<i>g</i>	<i>100</i>
	<i>Field techniques in Geoarchaeology</i>	<i>F</i>	<i>op</i>	<i>2</i>	<i>3</i>				
	<i>Microanalytics</i>	<i>L</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>-</i>	<i>g</i>	<i>100</i>
	<i>Microanalytics</i>	<i>E/P</i>	<i>op</i>	<i>2</i>	<i>3</i>				
	<i>Advanced FTIR</i>	<i>S/E</i>	<i>op</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>-</i>	<i>g</i>	<i>50</i>
Module exam	Depends on chosen classes								
Study Requirement	Depends on chosen classes								
Applicability	M.Sc. ASHE; specialization Geoarchaeology, ASHE-importable								
Participation Prerequisites	Introduction to Geoarchaeology (ASHE-3c), depends on chosen class. (recommendation)								

ASHE-9d: Special Topics in Paleoanthropology

Module number: ASHE-9d	Module title: Special Topics in Paleoanthropology				Type of module: Compulsory-Elective				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS			Private study: 120 h				
Duration of module	1 or 2 semesters (depending on the courses selected)								
Regular cycle	<u>Every winter semester:</u> 1. Craniofacial reconstruction 2. Paleopathology 3. Primate Evolution 4. Reconstruction of Physical Activities <u>(Additional) Winter or summer semester:</u> 5. Osteometrics, anatomical Variants, and Statistics 6. Dietary reconstruction of Fossil Hominins								
Language	English								
Learning- / Teaching forms	Lectures / Seminar / Exercises (depending on the courses selected; see below)								
Module content	<ul style="list-style-type: none"> This module involves a range of different courses (lectures/exercises/seminars) aiming to provide students with a deeper perspective on specialized topics of Paleoanthropology. Students can freely choose among the listed six different lectures/labs/seminars (see list below), in order to collect a minimum total of 6 ECTS. 								
Qualification goals	<ul style="list-style-type: none"> Each selected course aims to familiarize participants with the fundamental concepts, methodologies, and current state of research in the corresponding Paleoanthropological specialization. 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Craniofacial reconstruction</i>	S	op	2	3	OE	30	g	100
	<i>Osteometrics, anatomical Variants, and Statistics</i>	L + E	op	4	6	WE	90	g	
	<i>Paleopathology</i>	L + E	op	4	6	WE	90	g	
	<i>Primate Evolution</i>	S	op	2	3	WE	90	g	
	<i>Dietary reconstruction of Fossil Hominins</i>	S	op	2	3	WE	90	g	
<i>Reconstruction of Physical Activities</i>	L	op	2	3	WE or OE	90	g		
Module exam	Written examination or oral presentation (depending on the courses selected)								
Study requirement	Regular participation, depends on chosen class								
Applicability	M.Sc. ASHE, specialization Paleoanthropology								
Participation Prerequisites	Introduction to Paleoanthropology (ASHE-3d) (recommendation)								

ASHE-9e: Essentials in Evolutionary Biology

Module number: ASHE-9e	Module title: Essentials in Evolutionary Biology (Bio 4009 Import)				Type of module: Elective-compulsory				
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS			Private study: 120 h				
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lecture and Seminar								
Module content	In the lecture the students get an overview of central concepts and current research topics in evolutionary biology. They deepen their knowledge in the seminar, in which invited scientists give lectures on their current research. The graduates can apply their in-depth knowledge to write abstracts for the seminar lectures.								
Qualification goals	<p>The students:</p> <ul style="list-style-type: none"> • Understand complex concepts and processes of evolution and recognize connections. • Know current research topics in evolutionary biology. • Develop sound professional judgement. • Can critically examine current research projects. • Can ask questions to international scientists. • Can recognise the essential content of a scientific lecture. • Can write factual, compact and flowing short texts about current research topics. • Can comply with format requirements. 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Essentials in Evolutionary Biology (L) (BIO4009)</i>	L	c	2	3	WE	90	g	100
	<i>Essentials in Evolutionary Biology (S) (BIO4009)</i>	S	c	2	3				
Module exam	The module exam is part of the lecture component.								
Study Requirement	Participation in the lecture, attendance of at least five scientific lectures in the seminar. Students are referred to the information from Biology.								
Applicability	Master programs in biology and geosciences; M.Sc. ASHE, specialization Paleogenetics								
Participation Prerequisites	None. Students are referred to the information from Biology.								

ASHE-9f: Stone Age Society and Ideology

Module number: ASHE-9f	Module title: Stone Age society and ideology		Type of module: Compulsory-elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Introductory lecture and more specialized seminar or practical exercise. Lectures predominantly involve face-to-face learning with potential attendant written assignments. The seminar component encompasses taught and interactive elements, including reading and discussion of relevant literature and presentation of specific topics. The practical exercise focuses on hands-on work with material culture and independent study.								
Module content	Advanced course on the organization of Stone Age societies and aspects of prehistoric ideology. The lecture component provides an overview on empirical, theoretical and methodical aspects in various topics of Stone Age society and ideology. Basic terminology, research history, analytical methods, theoretical approaches and case studies are covered with a focus on Paleolithic Eurasia and Africa. Covered topics include demography, symbolism, art, religion, ornamentation and music, among others. Students can choose between either a more specialized seminar (e.g. Paleolithic art) or a practical exercise (e.g. experimental archaeology) that deal with specific aspects and spatio-temporal scales of these topics that might involve attendant excursions to relevant sites and museums.								
Qualification goals	Students learn advanced knowledge of various aspects of Stone Age societies and ideology. They understand different socio-cultural, ideological and demographic aspects of Stone Age societies and overarching research questions pursued in this field of study. Students will be enabled to critically reflect on the data, methods, theory and interpretations commonly employed in archaeological research of this field of study. They can integrate current research into the history and issues of the field and are able to develop and independently pursue advanced research questions of the Stone Age in oral presentation.								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>9f-1: Stone Age society and ideology</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>OE</i>	<i>Ca. 20 min</i>	<i>g</i>	<i>100</i>
	<i>9f-2: Stone Age society and ideology</i>	<i>S</i>	<i>op</i>	<i>2</i>	<i>3</i>				
	<i>9f-3: Stone Age society and ideology</i>	<i>E</i>	<i>op</i>	<i>2</i>	<i>3</i>				
Module exam	The module exam is part of the seminar or exercise component.								
Study requirement	Regular participation, reading and discussion of texts.								
Applicability	M.Sc. ASHE, specialization Stone Age Archaeology, ASHE-importable								
Participation Prerequisites	Participation in ASHE-3/4/5g-Stone Age Archaeology (recommendation)								

ASHE-9g: Advanced Zooarchaeology

Module number: ASHE-9g	Module title: Advanced Zooarchaeology		Type of module: Compulsory-Elective						
Credit Points (ECTS)	6								
Workload - Contact time - Private study	Workload: 180 h	Contact time: 60 h / 4 SWS	Private study: 120 h						
Duration of module	1 semester								
Regular cycle	Every winter semester								
Language	English								
Learning- / Teaching forms	Lecture and lab exercise								
Module content	<ul style="list-style-type: none"> Lectures will provide information on the behavior, ecology, and anatomy of animal taxa that were important to humans in the past. Classes will also be offered in Archaeo- and Paleoproteomics and Molecular Zooarchaeology. Lectures will provide a detailed presentation of different quantitative methods in zooarchaeology, which students will learn to evaluate critically In labs, students will identify materials from archaeological sites In labs, students will work with datasets in order to explore different quantitative methods and ways of presenting zooarchaeological data 								
Qualification goals	<ul style="list-style-type: none"> Database construction Identification of fragmented zooarchaeological materials Knowledge of different recording and data presentation methods Application of statistical methods to zooarchaeological datasets Presentation and discussion skills similar to conference or workshop presentations 								
Prerequisites for the allocation of credits / grades (if necessary weighting)	<i>Courses</i>	<i>Type of course</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of exam</i>	<i>Duration/Extent of exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>e.g. Advanced Zooarchaeology</i>	<i>L</i>	<i>c</i>	<i>2</i>	<i>3</i>		<i>-</i>		
	<i>e.g. Advanced Zooarchaeology</i>	<i>E</i>	<i>c</i>	<i>2</i>	<i>3</i>	<i>WE</i>	<i>-</i>	<i>g</i>	<i>100</i>
Module exam	The module exam is a written report that is part of the lab component.								
Study Requirements	Regular participation								
Applicability	M.Sc. ASHE, specialization Zooarchaeology								
Participation Prerequisites	Introduction to Zooarchaeology (ASHE-3g) (recommendation)								

ASHE-10: Statistics

Module number: ASHE-10	Module Title: Introduction to biostatistics (<i>BIO3010 import</i>)				Type of Module: Compulsory				
Credit Points (ECTS)	6								
Work Load - Contact Time - Self-study	Workload: 180h	Contact Time: 60 h / 4 CH			Self-study: 120 h				
Duration of Module	1 semester								
Regular Cycle	Every winter semester								
Language	English								
Type of Lecture	Lecture, seminar, practical								
Module Content	<ul style="list-style-type: none"> • Introduction to practical data processing and statistics in biology using common statistical software. 								
Qualification Goals	<ul style="list-style-type: none"> • Interdisciplinary professional field-oriented competence • Mastery of basic working techniques in the field • Selecting adequate subject-specific working techniques • Documentation and communication of measurement and examination results • Understanding of scientific questions in a general context • Working critically and developing sound, professional judgement 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Introduction to Biostatistics (BIO3010)</i>	L	c	3	4	WE	90 min	g	100
	<i>Introduction to Biostatistics (BIO3010)</i>	S	c	1	2				
Modul exam	Written exam covering lecture and seminar content.								
Study Requirement	Regular participation, work sheets. Students are referred to the information from Biology.								
Applicability	Master programs in biology and geosciences								
Participation Prerequisites	None. Students are referred to the information from Biology.								

ASHE-11: Project and Work Experience

Module number: ASHE-11	Module Title: Project and Work Experience		Type of Module: Compulsory						
Credit Points (ECTS)	18								
Work Load - Contact Time - Self-study	Workload: 540h	Contact Time: 175 h (incl. 4 week practical)	Self-study: 365 h						
Duration of Module	2 semester (summer 6 CP, winter 12 CP)								
Regular Cycle	Summer and winter semester								
Language	English, potentially German								
Type of Lecture	Project, Practical/Field								
Module Content	<ul style="list-style-type: none"> In this module, with the guidance of the supervisor, the students gain project and work experience in one of the selected specializations, which they can then deepen later in the master's thesis. In most cases, this is a practical work (i.e. internship) either in the field (to excavate/collect data) or in one of the laboratories of the IASHE or in a laboratory of a different research institution (to collect/preprocess/analyze data). Since field work is often offered in the summer semester break, the module starts in the 2nd semester. The exact workload may vary and is determined by the type of practical work (e.g. stay abroad for an excavation, internship in a laboratory, etc.) and should ideally consist of 4 weeks of practical either in the field or in a laboratory, plus meetings with the supervisor on top of creating their own research project Students have to write a detailed report (7-10 pages of text) summarizing the project and work experience gained during the practical. The report should be written in close consultation with the supervisor or project manager Practicals/Projects should be chosen by the students on their own initiative and according to their interests, ideally linked to the master's thesis 								
Qualification Goals	<ul style="list-style-type: none"> Independently pursuing scientific work in a project Linking theoretical course content with practical work experience Documentation and communication of results and methods Learning to work in teams 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Project and Work Experience</i>	<i>Pr</i>	<i>c</i>	<i>1</i>	<i>18</i>	<i>WE</i>	<i>-</i>	<i>g</i>	<i>100</i>
Module exam	Module grade derives from written report.								
Study Requirement	Realization of a scientific project as part of the specialization as well as participation in practical (Laboratory or field work).								
Applicability	M.Sc. ASHE								
Participation Prerequisites	None								

ASHE-12: Master Thesis

Module number: ASHE-12	Module Title: Master Thesis		Type of Module: Compulsory						
Credit Points (ECTS)	30								
Work Load - Contact Time - Self-study	Workload: 900h	Contact Time: 30 h	Self-study: 870 h						
Duration of Module	1 semester								
Regular Cycle	Every winter semester								
Language	English								
Type of Lecture	Master thesis and master colloquium								
Module Content	<ul style="list-style-type: none"> For their master's theses, students pursue their own original research study. They have the chance to become involved in various international research projects or to create their own research design and pursue their individual research questions. Students specialize in one of seven disciplines: Archaeobotany, Archaeometry, Geoarchaeology, Paleoanthropology, Paleogenetics, Stone Age Archaeology, or Zooarchaeology. Ideally, the research design and results of the master thesis should be of high quality so that the thesis is publishable in an international peer-reviewed journal. Participation in the master colloquium to present and defend their master's thesis 								
Qualification Goals	<ul style="list-style-type: none"> Working independently on a research project Conceptualizing a new research design, collecting and analyzing data, interpret and contextualize the findings, write a thesis to disseminate the project results Ability to present and defend the project results in a colloquium 								
Prerequisites for the allocation of credits/grades (if necessary weighting)	<i>Title</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Assessment</i>	<i>Duration of Assessment</i>	<i>Grading System</i>	<i>Calculation Module Grade</i>
	<i>Master Thesis</i>	-	c	-	20	WE	-	g	66,6
	<i>Master Colloquium</i>	C	c	2	10	OE	30 min	g	33,4
Module exam	Module grade derives from written thesis and oral presentation at master colloquium.								
Study Requirement	Participation in Master colloquium								
Applicability	M.Sc. ASHE								
Participation Prerequisites	Successful participation of Module ASHE-11 (Project and Work Experience) (recommendation)								