

# **Amtliche Bekanntmachungen der TU Bergakademie Freiberg**



**Nr. 15, Heft 2 vom 25. September  
2018**

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**Modulhandbuch**

**für den**

**Masterstudiengang**

**International Master of Science in  
Advanced Mineral Resources Development**



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## **Abkürzungen**

KA: schriftliche Klausur / written exam

MP: mündliche Prüfung / oral examination

AP: alternative Prüfungsleistung / alternative examination

PVL: Prüfungsvorleistung / prerequisite


MP/KA: mündliche oder schriftliche Prüfungsleistung (abhängig von Teilnehmerzahl) / written or oral examination (dependent on number of students)

SS, SoSe: Sommersemester / sommer semester


WS, WiSe: Wintersemester / winter semester


SX: Lehrveranstaltung in Semester X des Moduls / lecture in module semester x

SWS: Semesterwochenstunden


Data:	SUSBFR. MA. Nr. 090 / Examination number: -	Version: 03.08.2016 	Start Year: WiSe 2016
Module Name:	<b>Applied Engineering Geology and Brownfield Revitalisation</b>		
(English):			
Responsible:	<a href="#">Tamáskovics, Nándor / Dr.</a>		
Lecturer(s):	<a href="#">Tamáskovics, Nándor / Dr.</a>		
Institute(s):	<a href="#">Institute of Geotechnics</a>		
Duration:	1 Semester(s)		
Competencies:	Participants get the qualification to gain knowledge of the scientific field of engineering geology, including methods to evaluate soil and groundwater contaminated sites, learn to apply an interdisciplinary approach focussing on technique, economy, ecology and environmental law. The additional goal is to acquire the specific knowledge of a Brownfield Manager.		
Contents:	<p>The basis of Engineering Geology:</p> <ul style="list-style-type: none"> <li>• Aims, Development</li> <li>• Materials and Mass Fabric</li> <li>• Environmental Factors</li> </ul> <p>Investigating the ground:</p> <ul style="list-style-type: none"> <li>• Geological materials, sediments, rock materials, fluids and gases</li> <li>• Description of materials, properties and their measurement</li> <li>• Geological masses</li> <li>• Maps</li> <li>• Recovery of samples</li> <li>• Field tests and measurements</li> </ul> <p>Ground behaviour:</p> <ul style="list-style-type: none"> <li>• Ground response to engineering and natural processes</li> <li>• Withdrawal of support by surface and underground excavations</li> <li>• Static loading of the ground</li> <li>• Dynamic loading of the ground</li> <li>• Ground reaction to changes of fluid and gas pressures</li> </ul> <p>Technology of disposal sites and tailings:</p> <ul style="list-style-type: none"> <li>• Geotechnical aspects related to the construction of disposal sites and tailings</li> <li>• site survey, investigations and characteristics</li> <li>• transport mechanisms of contaminants in the underground</li> </ul> <p>Contaminated sites - investigation assessment and reusing (Lifecycle):</p> <ul style="list-style-type: none"> <li>• Environmental legislation relevant to contaminated sites</li> <li>• Quality control of sampling on contaminated sites, analytics of site contaminations, reclamation process and monitoring</li> <li>• Assessment of water, soil and air pollution level (risk assessment)</li> <li>• Overview of reclamation methods and geotechnical securing measures</li> <li>• Safety of operation in dealing with contaminated sites</li> <li>• Aspects and concepts of site revitalisation (innercity</li> </ul>		


	<p>areas/landscaping)</p> <p>Cost-benefit considerations, case studies:</p> <ul style="list-style-type: none"> <li>• Comparing various remediation strategies and selecting best option</li> </ul> <p>Developing and assessing successful after-use scenarios:</p> <ul style="list-style-type: none"> <li>• Risk assessment, marketing studies, cost benefit analysis</li> </ul>
Literature:	<p>Price, D.G.: Engineering Geology, Principles and Practice, Springer-Verlag, Berlin-Heidelberg, 2009</p> <p>Franzius V.; Altenbockum M.; Gerhold T. (Herausgeber): Handbuch: Altlastensanierung und Flächenmanagement, Verlag C.F. Müller</p> <p>TA Abfall/ Siedlungsabfall</p> <p>Arbeitshilfen Altlasten</p> <p>Sustainable Brownfield Regeneration: CABERNET Network Report</p> <p>Proceedings ECI Conferences „Green Brownfields“</p> <p>Document server: <a href="http://daemon.ifgt.tu-freiberg.de">http://daemon.ifgt.tu-freiberg.de</a></p> <p>Document server: <a href="http://penguin.ifgt.tu-freiberg.de">http://penguin.ifgt.tu-freiberg.de</a></p>
Types of Teaching:	<p>S1 (WS): Lectures (4 SWS)</p> <p>S1 (WS): Practical Application (2 SWS)</p>
Pre-requisites:	<p><b>Recommendations:</b></p> <p>B.Sc. in Geosciences or Geo-Engineering; Basic Knowledge of Geosystems</p>
Frequency:	each semester
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam.</p> <p>The module exam contains:</p> <p>MP/KA: Technology of disposal sites and tailings, Contaminated sites - investigation assessment and reusing (KA if 15 students or more) [MP minimum 30 min / KA 90 min]</p> <p>AP: Project report: Cost-benefit considerations, Developing and assessing successful after-use scenarios</p> <p>The type of exam (KA or MP) will be set at the beginning of the module.</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst:</p> <p>MP/KA: Technologien bei Deponien und Tailings, Altlasten - Untersuchung, Bewertung und Wiedernutzbarmachung (KA bei 15 und mehr Teilnehmern) [MP mindestens 30 min / KA 90 min]</p> <p>AP: Projektarbeit: Kosten - Nutzen Betrachtungen, Entwicklung und Bewertung erfolgreicher Szenarien zur Folgenutzung</p> <p>Die Art der Prüfung wird beim Start des Moduls festgelegt.</p>
Credit Points:	6
Grade:	<p>The Grade is generated from the examination result(s) with the following weights (w):</p> <p>MP/KA: Technology of disposal sites and tailings, Contaminated sites - investigation assessment and reusing [w: 2]</p> <p>AP: Project report: Cost-benefit considerations, Developing and assessing successful after-use scenarios [w: 1]</p>
Workload:	<p>The workload is 180h. It is the result of 90h attendance and 90h self-studies. Latter includes the preparation and review of the taught materials and exam preparation.</p>


Data:	INTLAW1. MA. Nr. 2902 / Examination number: 61514	Version: 14.07.2016 	Start Year: WiSe 2016
Module Name: (English):	<b>Aspects of the International Law of Resources &amp; Environment 1</b>		
Responsible:	<a href="#">Jaeckel, Liv / Prof.</a>		
Lecturer(s):	<a href="#">Albrecht, Maria</a>		
Institute(s):	<a href="#">Professor of Public and Environmental Law</a>		
Duration:	1 Semester(s)		
Competencies:	The purpose of the cluster is to give an introduction to the basic terms of law and to legal problems related to resources and environment. Students without a law background will be enabled to understand the characteristics of these fields as such, before turning to a range of more specific questions. After completion of the cluster, students should be able to identify the legal issues of simple cases in the fields of law and to decide on them using the established legal methods.		
Contents:	<p>1. General Introduction to Law This part contains the basic legal terms, the introduction to the different fields of law and the interpretation of law.</p> <p>2. Introduction to International and International environmental Law Problems of allocation of resources between states and international environmental problems will be discussed.</p> <p>3. The topics 1 and 2 will also be presented by presented by discussing cases (seminar).</p>		
Literature:	Birnie/Boyle/Redgwell, International Law and the Environment, Oxford University Press		
Types of Teaching:	S1 (WS): Lectures (1 SWS) S1 (WS): Exercises (1 SWS)		
Pre-requisites:	<b>Recommendations:</b> No previous knowledge of law is required.		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min]		
	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min]		
Credit Points:	3		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]		
Workload:	The workload is 90h. It is the result of 30h attendance and 60h self-studies. Self-studies include assignments, preparation and wrapping up of lectures as well as preparation of examinations.		


Data:	INTLAW2. MA. Nr. 2921 / Examination number: 61516	Version: 14.07.2016 	Start Year: SoSe 2017
Module Name: (English):	<b>Aspects of the International Law of Resources &amp; Environment 2</b>		
Responsible:	<a href="#">Jaeckel, Liv / Prof.</a>		
Lecturer(s):	<a href="#">Albrecht, Maria</a>		
Institute(s):	<a href="#">Professor of Public and Environmental Law</a>		
Duration:	1 Semester(s)		
Competencies:	Students with the background of Aspects of International Law of Resources & Environment 1 will be enabled to understand the characteristics of cases in International environmental law. After completion of this cluster, students should be able to identify the legal issues of cases in the fields of law discussed and to decide them using the established legal methods		
Contents:	<p>1. The WTO and conflicts between trade and environment The WTO as the only global International organization dealing with the rules of trade between nations. Decisions of the WTO panel regarding conflicts of national environmental protection measures and free trade will be presented.</p> <p>2. European Union and its Environmental Policy Students should gain a basic knowledge of the law-making process in the EU and the characteristics of different types of legal measures.</p> <p>3. The topics 1 and 2 will also be presented by discussing cases (seminar).</p>		
Literature:	Birnie/Boyle/Redgwell, International Law and the Environment, Oxford University Press		
Types of Teaching:	S1 (SS): Lectures (1 SWS) S1 (SS): Seminar (1 SWS)		
Pre-requisites:	<b>Recommendations:</b> <a href="#">Aspects of the International Law of Resources &amp; Environment 1, 2016-07-14</a>		
Frequency:	yearly in the summer semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min] Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min]		
Credit Points:	3		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]		
Workload:	The workload is 90h. It is the result of 30h attendance and 60h self-studies. Self-studies include assignments, preparation and wrapping up of lectures as well as preparation of examinations.		





Data:	CSRM. MA. Nr. 2908 / Examination number: 62405	Version: 19.02.2018 	Start Year: SoSe 2017
Module Name:	<b>Corporate Sustainability and Risk Management</b>		
(English):			
Responsible:	<a href="#">Fröhling, Magnus / Prof.</a>		
Lecturer(s):	<a href="#">Fröhling, Magnus / Prof.</a>		
Institute(s):	<a href="#">Professor of Ressourcemanagement</a>		
Duration:	1 Semester(s)		
Competencies:	The students are able to identify, discuss and solve fundamental problems of sustainability and risk management in companies.		
Contents:	<p>Among others the topics of the course comprise:</p> <ul style="list-style-type: none"> <li>• Originis the sustainability concept</li> <li>• Relevance of the sustainability concpet for companies</li> <li>• Methods and tools for the operationalisation of sustainability management,</li> <li>• Relevance of corporate risk management</li> <li>• The risk management cycle</li> <li>• Methods and tools for corporate risk management.</li> </ul>		
Literature:	<ul style="list-style-type: none"> <li>• Anderson (2005): Corporate Survival: The Critical Importance of Sustainability Risk Management, iUniverse</li> <li>• Bertsch (2011): Uncertainty handling in multi-attribute decision support for industrial risk management , KIT Scientific Publishing</li> <li>• Borghesi, Gaudenzi (Eds., 2013): Risk Management, Springer</li> <li>• Merz (2011): Entwicklung einer indikatorenbasierten Methodik zur Vulnerabilitätsanalyse für die Bewertung von Risiken in der industriellen Produktion, KIT Scientific Publishing</li> <li>• Okpara, Idowu (Eds., 2013): Corporate Social Responsibility, Springer</li> <li>• Pojasek, R.B. (2017): Organizational Risk Management and Sustainability: A Practical Step-by-Step Guide, CRC Press</li> <li>• Taticchi, Carbone, Albino (Eds., 2013): Corporate Sustainability, Springer</li> </ul>		
Types of Teaching:	S1 (SS): Lectures (2 SWS) S1 (SS): Exercises (2 SWS)		
Pre-requisites:			
Frequency:	yearly in the summer semester		
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 to 90 min]</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 bis 90 min]</p>		
Credit Points:	6		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]		
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies.		

Data:	COSTAC. MA. Nr. 3497 / Examination number: 61209	Version: 28.04.2010 	Start Year: WiSe 2010
Module Name: (English):	<b>Cost Accounting &amp; Controlling</b>		
Responsible:	<a href="#">Grosse, Diana / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Grosse, Diana / Prof. Dr.</a>		
Institute(s):	<a href="#">Professor of Innovation Management</a>		
Duration:	1 Semester(s)		
Competencies:	Students will be enabled to apply different methods of cost accounting and controlling to provide the management with guidance for operational and strategic decisions.		
Contents:	Within the MBA IMRE Programme this cluster comprises one main course dealing with financial management in organizations: Cost Accounting and Controlling (First part: Basics of Cost Accounting, Cost Category Accounting, Cost Center Accounting, Cost Unit Accounting, Operating Income Statement. Second part: Basics of Controlling, Operations Management, Strategic Management)		
Literature:	Horngren, C.; Bhimani; A., et al. (2007): Management and Cost Accounting, New Jersey. Horngren, C.; Foster, G.; et al. (2008): Cost Accounting, New Jersey.		
Types of Teaching:	S1 (WS): Lectures (1 SWS) S1 (WS): Exercises (1 SWS)		
Pre-requisites:	<b>Recommendations:</b> No previous knowledge of is required.		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min] Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min]		
Credit Points:	3		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]		
Workload:	The workload is 90h. It is the result of 30h attendance and 60h self-studies.		

Daten:	DEU A1/ 1.Sem. Nr. 948 / Prüfungs-Nr.: 71101	Stand: 04.08.2017 	Start: WiSe 2016
Modulname:	<b>Deutsch A1/ 1. Semester</b>		
(englisch):	German A 1/ 1st Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Im Kurs werden Grundlagen in Phonetik, Orthographie, Grammatik und Lexik vermittelt. Die Teilnehmer erwerben Grundkenntnisse und Grundfertigkeiten im Hören, Sprechen, Lesen und Schreiben auf der Basis der Allgemeinsprache sowie landeskundliche Kenntnisse.		
Inhalte:	Kommunikation im Alltag (Menschen kennen lernen, Einkaufen, Restaurantbesuch, Tagesabläufe, Uhrzeit); Grammatik: zum Beispiel Fragestellungen, Zahlen, Konjugation der Verben, Präsens und Präteritum, Mengenangaben, Plural der Nomen, Komposita		
Typische Fachliteratur:	Begegnungen A1+, Schubert Verlag		
Lehrformen:	S1 (WS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Empfohlen:</b> Keine Vorkenntnisse der deutschen Sprache notwendig		
Turnus:	jährlich im Wintersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Erfolgreiche aktive Teilnahme an mindestens 80% des Unterrichts PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium.		

Daten:	DEU A1/ 2. Sem. BA. Nr. 949 / Prüfungs-Nr.: 71102	Stand: 04.08.2017 	Start: SoSe 2017
Modulname:	<b>Deutsch A1/ 2. Semester</b>		
(englisch):	German A1/ 2nd Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Im Kurs werden Grundlagen in Phonetik, Orthographie, Grammatik und Lexik vermittelt. Die Teilnehmer erwerben Grundkenntnisse und Grundfertigkeiten im Hören, Sprechen, Lesen und Schreiben auf der Basis der Allgemeinsprache sowie landeskundliche Kenntnisse.		
Inhalte:	Orientierung in der Stadt beziehungsweise in der Firma, öffentliche Verkehrsmittel, Wegbeschreibung, Berufe und Arbeitsalltag, Körper und Gesundheit, Wohnungssuche und -einrichtung, Lebenslauf, Kleidung; Grammatik: zum Beispiel Präpositionen, Frageartikel, Modalverben, Possessivartikel, Perfekt, Konjunktionen, Demonstrativpronomen, Graduierung und Komparativ		
Typische Fachliteratur:	Begegnungen A1+, Schubert Verlag		
Lehrformen:	S1 (SS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Obligatorisch:</b> <a href="#">Deutsch A1/ 1. Semester, 2015-08-26</a> oder äquivalente Sprachkenntnisse		
Turnus:	jährlich im Sommersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Aktive Teilnahme am Unterricht (mindestens 80%) PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium. Der Zeitaufwand beträgt 120 Stunden und setzt sich zusammen aus 60 Stunden Präsenzzeit und 60 Stunden Selbststudium.		


Daten:	DEU A2/1. Sem. BA.Nr. 950 / Prüfungs-Nr.: 71103	Stand: 04.08.2017 	Start: WiSe 2016
Modulname:	<b>Deutsch A2/ 1. Semester</b>		
(englisch):	German A2/ 1st Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Die Teilnehmer erweitern ihre Kenntnisse zu Grundlagen der deutschen Grammatik sowie ihren alltagspraktischen Wortschatz und führen Gespräche zu verschiedenen Themen des Alltags.		
Inhalte:	Familie und Verwandtschaft, Feste und Feiern in Deutschland, Wohnung und Wohnungseinrichtung, Schule und Ausbildung, Aussehen und Mode, Jahreszeiten, Wetter und Urlaub, Aspekte der Geschichte (Deutschland, Österreich, Schweiz); Grammatik: z.B. Nebensätze mit weil, wenn, dass; Rektion der Verben; Ordinalzahlen; Präpositionen; Reflexivpronomen; Zukunft ausdrücken; Adjektivdeklination		
Typische Fachliteratur:	Begegnungen A2+, Schubert Verlag		
Lehrformen:	S1 (WS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Obligatorisch:</b> <a href="#">Deutsch A1/ 2. Semester, 2015-08-26</a> oder äquivalente Sprachkenntnisse		
Turnus:	jährlich im Wintersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Erfolgreiche aktive Teilnahme an mind. 80% d. Unterrichts PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium.		


Daten:	DEUA/2.Sem BA.Nr. 951 / Prüfungs-Nr.: 71105	Stand: 04.08.2017 	Start: SoSe 2017
Modulname:	<b>Deutsch A2/ 2. Semester</b>		
(englisch):	German A2/ 2nd Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Die Teilnehmer erweitern ihre Kenntnisse zu Grundlagen der deutschen Grammatik sowie ihren alltagspraktischen Wortschatz und führen Gespräche zu verschiedenen Themen des Alltags.		
Inhalte:	Freizeitaktivitäten (Sport, Vereine), Arbeit und Arbeitssuche, Politik in Deutschland, Städte (Leipzig, Berlin), Verkehr und Verkehrsmittel, Medien, Fernsehen in Deutschland, Kulturelle Unterschiede; Grammatik: z.B. Indefinita, Relativsätze, Nebensätze mit bevor, bis, als, deshalb, wenn, Konjunktiv II,		
Typische Fachliteratur:	Begegnungen A2+, Schubert Verlag		
Lehrformen:	S1 (SS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Obligatorisch:</b> <a href="#">Deutsch A2/ 1. Semester, 2015-08-26</a> oder äquivalente Sprachkenntnisse		
Turnus:	jährlich im Sommersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Erfolgreiche aktive Teilnahme an mind. 80% d. Unterrichts PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium.		


Daten:	DEUB1/1.Sem. Nr. 952 / Prüfungs-Nr.: 71104	Stand: 04.08.2017 	Start: WiSe 2016
Modulname:	<b>Deutsch B1/ 1.Semester</b>		
(englisch):	German B1/ 1st Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Die Teilnehmer bauen die in den Modulen Deutsch A1 und A2 erworbenen sprachlichen Kenntnisse und Fertigkeiten unter besonderer Berücksichtigung der mündlichen Kommunikation aus. Sie wiederholen und erweitern ihren Wortschatz. Auf der Basis aktueller und historischer Texte erhalten die Teilnehmer landeskundliche Informationen über die Bundesrepublik Deutschland.		
Inhalte:	Zusammenleben der Menschen in Deutschland (Wohn- und Lebensformen, Vorstellungen über berufliche Entwicklung und Freizeitgestaltung, Konsumverhalten, Beziehung zur Natur)		
Typische Fachliteratur:	Begegnungen B1+, Schubert Verlag		
Lehrformen:	S1 (WS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Obligatorisch:</b> <a href="#">Deutsch A2/ 2. Semester, 2015-08-26</a> oder äquivalente Sprachkenntnisse		
Turnus:	jährlich im Wintersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Erfolgreiche aktive Teilnahme an mind. 80% d. Unterrichts PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium.		


Daten:	DEUB1/2. Sem. 953 / Prüfungs-Nr.: 71106	Stand: 26.08.2015 	Start: SoSe 2017
Modulname:	<b>Deutsch B1/ 2. Semester</b>		
(englisch):	German B1/ 2nd Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Die Teilnehmer bauen die in dem Modul Deutsch b1/1.Semester erworbenen sprachlichen Kenntnisse und Fertigkeiten unter besonderer Berücksichtigung der mündlichen Kommunikation aus. Sie wiederholen und erweitern ihren Wortschatz. Auf der Basis aktueller und historischer Texte erhalten die Teilnehmer landeskundliche Informationen über die Bundesrepublik Deutschland.		
Inhalte:	Zusammenleben der Menschen in Deutschland (Wohn- und Lebensformen, Vorstellungen über berufliche Entwicklung und Freizeitgestaltung, Konsumverhalten, Beziehung zur Natur)		
Typische Fachliteratur:	Begegnungen B1+, Schubert Verlag		
Lehrformen:	S1 (SS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Obligatorisch:</b> <a href="#">Deutsch B1/ 1.Semester, 2015-08-26</a> oder äquivalente Sprachkenntnisse		
Turnus:	jährlich im Sommersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Erfolgreiche aktive Teilnahme an mind. 80% d. Unterrichts PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium.		




Daten:	B2.1 BA. Nr. / Prüfungs-Nr.: 70311	Stand: 04.08.2017 	Start: WiSe 2016
Modulname:	<b>Deutsch B2/ 1. Semester</b>		
(englisch):	German B2/ 1st Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Die Teilnehmer bauen ihre sprachlichen Kenntnisse und Fertigkeiten auf dem Niveau B2 aus. Sie wiederholen und erweitern ihren Wortschatz. Mithilfe handlungsorientierter Aufgaben und Aktivitäten machen die Teilnehmer sich vertraut mit Lernstrategien, Grammatik, Wortschatz, Landeskunde und interkulturellen Aspekten. Die Teilnehmer verstehen und bearbeiten authentische Texte im Lesen, Hören, Sprechen und Schreiben.		
Inhalte:	Leben in Deutschland und im Ausland, verbale und non-verbale Kommunikation, Berufsleben, Zusammenleben in Gesellschaft & Familie, Wissenschaft, Grammatik (u.a. Negation, Konnektoren, Satzbau, Nominalisierung, Passivformen)		
Typische Fachliteratur:	Aspekte B2 (ISBN: 978-3-12-606012-7)		
Lehrformen:	S1 (WS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Obligatorisch:</b> abgeschlossenes B1-Niveau		
Turnus:	jährlich im Wintersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: mind. Anwesenheit 80 % PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium.		

Daten:	B2.2 BA. Nr. / Prüfungs-Nr.: 70312	Stand: 04.08.2017 	Start: SoSe 2017
Modulname:	<b>Deutsch B2/ 2. Semester</b>		
(englisch):	German B2/ 2nd Semester		
Verantwortlich(e):	<a href="#">Bellmann, Kerstin</a>		
Dozent(en):			
Institut(e):	<a href="#">Internationales Universitätszentrum</a>		
Dauer:	1 Semester		
Qualifikationsziele / Kompetenzen:	Die Teilnehmer bauen ihre sprachlichen Kenntnisse und Fertigkeiten auf dem Niveau B2 aus. Sie wiederholen und erweitern ihren Wortschatz. Mithilfe handlungsorientierter Aufgaben und Aktivitäten machen die Teilnehmer sich vertraut mit Lernstrategien, Grammatik, Wortschatz, Landeskunde und interkulturellen Aspekten. Die Teilnehmer verstehen und bearbeiten authentische Texte im Lesen, Hören, Sprechen und Schreiben.		
Inhalte:	Kultur & Geschichte, Fertigkeiten im Berufsleben (z.B. Telefonieren) deutsche Geschichte, Literatur, Zukunftsvisionen, Grammatik (u.a. Partizipien, indirekte Rede, Konjunktiv I & II, Funktionverbgefüge)		
Typische Fachliteratur:	Aspekte B2 (ISBN: 978-3-12-606012-7)		
Lehrformen:	S1 (SS): Übung (4 SWS)		
Voraussetzungen für die Teilnahme:	<b>Obligatorisch:</b> <a href="#">Deutsch B2/ 1. Semester, 2016-04-04</a> abgeschlossenes B1-Niveau		
Turnus:	jährlich im Sommersemester		
Voraussetzungen für die Vergabe von Leistungspunkten:	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Mind. Anwesenheit 80 % PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Leistungspunkte:	4		
Note:	Die Note ergibt sich entsprechend der Gewichtung (w) aus folgenden(r) Prüfungsleistung(en): KA [w: 1]		
Arbeitsaufwand:	Der Zeitaufwand beträgt 120h und setzt sich zusammen aus 60h Präsenzzeit und 60h Selbststudium.		


Data:	ENVMGTPOL. MA. Nr. 2909 / Examination number: 62403	Version: 31.05.2018 	Start Year: WiSe 2016
Module Name:	<b>Environmental Management and Policies</b>		
(English):			
Responsible:	<a href="#">Fröhling, Magnus / Prof.</a>		
Lecturer(s):	<a href="#">Fröhling, Magnus / Prof.</a>		
Institute(s):	<a href="#">Professor of Ressourcemanagement</a>		
Duration:	1 Semester(s)		
Competencies:	Students are able to identify and explain environmental issues accruing in companies. They explain the origin of environmental impacts, the framework which has to be considered and are able to apply selected methods and tools to solve (simplified) problems accruing in practice. They discuss the status of these methods and tools with regard to real problem instances and the current scientific literature and political discussion.		
Contents:	<p>The course covers among others:</p> <ul style="list-style-type: none"> <li>• Environmental impacts of industrial and business activities,</li> <li>• Societal, economic and legal frameworks of environmental protection,</li> <li>• Environmental Management Systems, and</li> <li>• Methods and tools of Cleaner Production.</li> </ul>		
Literature:	<ul style="list-style-type: none"> <li>• Calow (1999): Blackwells Concise Encyclopedia of Environmental Management, John Wiley &amp; Sons</li> <li>• Dobson (2016): Environmental Politics, Oxford University Press</li> <li>• Russo (2008): Environmental Management: Readings and Cases, Sage Pubn</li> <li>• Schaltegger, Burritt, Petersen (2003): An Introduction to Corporate Environmental Management, Greenleaf Publishing</li> <li>• Tinsley, Pillai (2016): Environmental Management Systems: Understanding Organizational Drivers and Barriers, Routledge</li> </ul>		
Types of Teaching:	<p>S1 (WS): Lecture Environmental Management and Policies / Lectures (2 SWS)</p> <p>S1 (WS): Tutorial Environmental Management and Policies / Exercises (2 SWS)</p>		
Pre-requisites:			
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam.</p> <p>The module exam contains:</p> <p>KA: Written exam [90 min]</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst:</p> <p>KA: Written exam [90 min]</p>		
Credit Points:	6		
Grade:	<p>The Grade is generated from the examination result(s) with the following weights (w):</p> <p>KA: Written exam [w: 4]</p>		
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies.		

Data:	GSC MA. Nr. / Examination number: -	Version: 04.07.2018 	Start Year: SoSe 2019
Module Name:	<b>Geo-scientific Communication</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Jacob, Mark / Dr. Hoth, Nils / Dr.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a>		
Duration:	1 Semester(s)		
Competencies:	The course intends to give students the knowledge and the ability to perform scientific database research. Furthermore they will be able to structure and document their scientific work and results. Also they learn more about scientific writing (of a paper), as well as to present and defence their results (oral talk). This is very important before writing their MSc-thesis.		
Contents:	<ul style="list-style-type: none"> <li>- dealing with scientific literature</li> <li>- Detailed database research,</li> <li>- citation of publications,</li> <li>- aspects about writing technical or review papers</li> <li>- structure your practical work in relation to the Master thesis (deal with sub-aspects)</li> <li>- Main ideas how to structure the written MSc-thesis in comparison to technical reports</li> <li>- dealing with the resources of the university library - search papers, therefore searching strategies</li> <li>Oral communication (language of describing graphs, charts and diagrams)</li> <li>Argumentation line of talks</li> <li>Written communication - Language to link points and ideas, language of comparing and contrasting</li> <li>Major goals are learning and applying strategies of transporting scientific informations using different techniques and analogue and digital sources.</li> <li>AP main work</li> <li>working on a scientific topic for a defined time, prepare a paper (around 12 pages) in relation to a ground water, mine water or mining/ geoscience based topic. Students have to present their topic, argumentation line and basic literature (2 to 5 scientific papers) in before they start to write the paper. Afterwards, when they have handed in the paper, they have to give a presentation/ defence talk about this topic/ paper.</li> </ul>		
Literature:	Cargill, M. [2013] : 2013 Writing scientific research articles and internal material		
Types of Teaching:	S1 (SS): Lectures (1 SWS) S1 (SS): Exercises (2 d)		
Pre-requisites:	<b>Recommendations:</b> basics in hydrogeology, groundwater chemistry and mine water		
Frequency:	yearly in the summer semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: AP*: writing a scientific research paper AP*: presentation and defence of the paper  * In modules requiring more than one exam, this exam has to be passed		

	<p>or completed with at least "ausreichend" (4,0), respectively.</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst:</p> <p>AP*: Fachartikel erstellen</p> <p>AP*: Vorstellung und Verteidigung des Fachartikels</p> <p>* Bei Modulen mit mehreren Prüfungsleistungen muss diese Prüfungsleistung bestanden bzw. mit mindestens "ausreichend" (4,0) bewertet sein.</p>
Credit Points:	4
Grade:	<p>The Grade is generated from the examination result(s) with the following weights (w):</p> <p>AP*: writing a scientific research paper [w: 2]</p> <p>AP*: presentation and defence of the paper [w: 1]</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p>
Workload:	The workload is 120h. It is the result of 31h attendance and 89h self-studies. (89 h are spent on preparation of the paper and preparing the presentation as well as self study).


Data:	GWCGWMA MA. / Examination number: -	Version: 04.07.2018 	Start Year: SoSe 2019
Module Name:	<b>Ground Water Chemistry for GW-Management - Advanced</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Hoth, Nils / Dr. Klammerth, Nikolaus / Dr. rer. nat.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a> <a href="#">Institute of Geology</a>		
Duration:	1 Semester(s)		
Competencies:	Students will gain confidence and experience in sampling, sample handling (conservation, storage) as well as measuring field parameters. Furthermore they enhance their knowledge about analytical techniques for groundwater. He gets a general understanding with respect to the use of isotopes to trace flow and reactive systems in the subsurface (within aquifers). In general they practice and deepen their knowledge about handling of photometry and other analytical techniques.		
Contents:	<ul style="list-style-type: none"> <li>- different analytical techniques <ul style="list-style-type: none"> <li>wet chemistry (gravimetry, volumetry), spectroscopy, chromatography, electro-analysis</li> <li>- in detail: acid-base titration, UV-VIS and IR-spectroscopy</li> <li>- AAS, AES (MP-AES), hXRF</li> </ul> </li> <li>Part of hydrogeochemical modelling - with PHREEQC <ul style="list-style-type: none"> <li>speciation of a water sample , ionic balance error, saturation index equilibrium to mineral phases, interaction with a gas phase , cation exchange etc.</li> </ul> </li> </ul> <p>Lecture groundwater chemistry (sampling and analytical techniques) combined with laboratory exercises Determination of limit of detection and limit of quantification. Using photometry for different species now again , in more detail</p> <p>Lecture isotope hydrology: Basics of isotope measurements in context to trace subsurface flow systems. Stable (H, O, C, N, S) isotopes in aquatic systems. Explanation of investigations on different test sites (field examples) – study and interpretation of flow and reactive systems.</p>		
Literature:	Stumm & Morgan (1996): Aquatic Chemistry. John, Wiley & Sons; APPELO & POSTMA (1996) or (2005): Geochemistry, groundwater and pollution, Balkema. CLARK & FRITZ (1997): Environmental Isotopes in Hydrogeology, Lewis Publishers.		
Types of Teaching:	S1 (SS): GW chemistry - analytical techniques / Lectures (2 SWS) S1 (SS): Stable Istopo hydrology - trace flow and reactions / Lectures (1 SWS) S1 (SS): groundwater chemistry - advanced practica / Practical Application (1 SWS)		
Pre-requisites:	<b>Recommendations:</b> <a href="#">Ground Water Chemistry for GW-Management - Basics, 2018-07-04</a>		
Frequency:	yearly in the summer semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA*: GW chemistry - analytical techniques [90 min] KA*: Isotope hydrology - trace flow and reaction [90 min]		

	<p>AP*: practical lab reports</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst:</p> <p>KA*: Grundwasserchemie - Analysetechniken [90 min]</p> <p>KA*: Isotopenmethoden - Kennzeichnung von Strömung und Reaktionen [90 min]</p> <p>AP*: Praktikumsprotokolle</p> <p>* Bei Modulen mit mehreren Prüfungsleistungen muss diese Prüfungsleistung bestanden bzw. mit mindestens "ausreichend" (4,0) bewertet sein.</p>
Credit Points:	6
Grade:	<p>The Grade is generated from the examination result(s) with the following weights (w):</p> <p>KA*: GW chemistry - analytical techniques [w: 1]</p> <p>KA*: Isotope hydrology - trace flow and reaction [w: 1]</p> <p>AP*: practical lab reports [w: 1]</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p>
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies. (120 h are spent on preparation, preparing the reports for the lab classes and self study)


Data:	GWCGWMB MA. / Examination number: -	Version: 04.07.2018 	Start Year: WiSe 2018
Module Name:	<b>Ground Water Chemistry for GW-Management - Basics</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Hoth, Nils / Dr.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a>		
Duration:	1 Semester(s)		
Competencies:	The student is widening his chemical know how in the field of hydrochemical aspects in particular with respect to groundwater. He will be able to understand and solve basic as well as more complex water quality problems. He gains an understanding of basic practical lab work for analysis.		
Contents:	<ul style="list-style-type: none"> <li>- water as universal solvent</li> <li>- drinking water standards / disease aspects</li> <li>- basics of thermodynamics in relation to Ground waters (ionic strength, activity versus concentration, saturation index)</li> <li>- species interactions, solubility of gases in water</li> <li>- redox reactions - stability diagrams</li> <li>- solution/ precipitation of mineral phases - equilibria to the fluid phase</li> <li>- hydrochemical milieu measurements (background)</li> <li>- Acidity, alkalinity - <math>K_b, K_s</math> values - and titration in general</li> <li>- Carbonic acid - Carbonate phases interaction</li> <li>- Ground Water Sampling (hydraulic and chemical criteria)</li> <li>- Field handling of Water Samples (Filtration, Conservation)</li> </ul>		
Literature:	APPELO & POSTMA (1996) or (2005): Geochemistry, groundwater and pollution, Balkema.		
Types of Teaching:	S1 (WS): Basics of GW chemistry / Lectures (2 SWS) S1 (WS): practical lab courses - Basic hydrochemical lab work, basics of titration, photometry etc. / Practical Application (2 SWS)		
Pre-requisites:	<b>Recommendations:</b> Basic knowledge of chemistry and hydrogeology		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam. The module exam contains: KA*: written exam to GW-chemistry [90 min] AP*: reports of lab practical work</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA*: Klausur Grundwasserchemie - Grundlagen [90 min] AP*: Protokolle zu den Laborpraktika Grundwasserchemie-Grundlagen</p> <p>* Bei Modulen mit mehreren Prüfungsleistungen muss diese Prüfungsleistung bestanden bzw. mit mindestens "ausreichend" (4,0) bewertet sein.</p>		
Credit Points:	6		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA*: written exam to GW-chemistry [w: 2] AP*: reports of lab practical work [w: 1]		




	* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies. (120 h are spent on preparation, writing the lab course reports and self study)

Data:	HRMOB. MA. Nr. 3203 / Examination number: 61008	Version: 14.02.2017 	Start Year: SoSe 2011
Module Name:	<b>Human Resource Management and Organizational Behavior (HRMOB)</b>		
(English):			
Responsible:	<a href="#">Stumpf-Wollersheim, Jutta / Prof. Dr. rer. pol.</a>		
Lecturer(s):	<a href="#">Stumpf-Wollersheim, Jutta / Prof. Dr. rer. pol.</a>		
Institute(s):	<a href="#">International Management and Strategy</a>		
Duration:	1 Semester(s)		
Competencies:	<p>The primary objective of this course is to help you learn to diagnose management situations so that you will be able to transfer this skill to your working world.</p> <p>Specific objectives of the course include:</p> <ol style="list-style-type: none"> <li>1. Understanding the relevance of human resources for organizations and the key concepts of human behavior in organizations.</li> <li>2. Appreciating how the human side of management is an essential complement to the technical skills you are learning in other courses.</li> <li>3. Learning concepts and approaches that will enable you to analyze HR- and organizational problems and to develop appropriate solutions.</li> <li>4. Developing the knowledge and skills you need to be a successful manager of yourself and others.</li> </ol>		
Contents:	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Organizational Behavior (OB) <ol style="list-style-type: none"> <li>2.1 Individual level (foundations of individual behavior; impacts of individual characteristics; impact of situational factors)</li> <li>2.2 Group level (foundations of group behavior, understanding work teams; group processes e.g., learning in teams)</li> <li>2.3 Leadership</li> </ol> </li> <li>3. Human Resource Management (HRM) <ol style="list-style-type: none"> <li>3.1 Changing Nature of HRM</li> <li>3.2 HRM Planning</li> <li>3.3 Human Resource Adjustments</li> <li>3.4 Training and Developing HR</li> <li>3.5 Compensating HR</li> </ol> </li> </ol> <p>Presentations and Conclusions</p>		
Literature:	<p>Mathis, R.L.; Jackson, J.H.: „Human Resource Management“, South Western College Publishing: Cincinnati 2006</p> <p>Judge, T.A.; Robbins, S.P.: „Organizational Behavior“, Pearson Prentice Hall: Upper Saddle River, N.J. 2016</p>		
Types of Teaching:	S1 (SS): Lectures (2 SWS)		
Pre-requisites:	<b>Recommendations:</b> None		
Frequency:	yearly in the summer semester		
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam.</p> <p>The module exam contains:</p> <p>KA: Final test [90 min]</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst:</p> <p>KA: Abschlussklausur [90 min]</p>		
Credit Points:	3		
Grade:	The Grade is generated from the examination result(s) with the following		


	weights (w): KA: Final test [w: 1]
Workload:	The workload is 90h. It is the result of 30h attendance and 60h self-studies.

Data:	FTMGWM. MA. / Examination number: -	Version: 04.07.2018 	Start Year: WiSe 2018
Module Name:	<b>Hydrogeological Flow and Transport Modelling for GW-Management</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Berrios Amador, Danilo</a> <a href="#">Hoth, Nils / Dr.</a> <a href="#">Shao, Haibing / Junior-Prof.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a> <a href="#">Institute of Geotechnics</a>		
Duration:	1 Semester(s)		
Competencies:	Modelling of flow, transport and chemical reactions for ground water systems. The student will be able to analyse a given situation, to choose an appropriate algorithm and software package to solve a given task. He is able to interpret complex results of the different models in relation to the practical, site related questions.		
Contents:	<ul style="list-style-type: none"> <li>- Basics of hydrogeological flow modelling - numerical (FDM, FEM) and analytical solutions</li> <li>- Importance of the conceptual model</li> <li>- Boundary conditions, local grid refinements</li> <li>- Parameterisation aspects</li> <li>- Basics of non-reactive transport modelling</li> <li>- Transport modelling of organic contaminants - application of knowledge from GW-chemistry (use of isotherme concepts)</li> <li>- Boundary conditions for transport equation, stability criteria for numerical solution techniques</li> <li>- Reactive transport modelling - 1D with PHREEQC - concept, basic understanding (with mineral phase interactions and cation exchange)</li> <li>- Conceptual understanding for the modelling of column flow/ transport experiments</li> <li>- Short introduction to Multiphase flow and density driven flow</li> </ul> <p>Practical exercises: computer- training block courses in relation to FDM Modelling - MODFLOW FEM- Modelling 1D-reactive transport with PHREEQC</p>		
Literature:	Rausch et al. (2005): Solute transport modelling Domenico & Schwartz (1998): Physical and Chemical Hydrogeology. APPELO & POSTMA (2005): Geochemistry, groundwater and pollution		
Types of Teaching:	S1 (WS): Lectures (2 SWS) S1 (WS): computer exercises / Exercises (2 SWS)		
Pre-requisites:	<b>Recommendations:</b> Hydrogeology for GW-Management - Basics and Advanced		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA* [90 min] AP*: Exercises - homework computer courses  * In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively. Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen		

	<p>der Modulprüfung. Die Modulprüfung umfasst:  KA* [90 min]  AP*: Übungen - Hausaufgaben aus den Computerkursen</p> <p>* Bei Modulen mit mehreren Prüfungsleistungen muss diese Prüfungsleistung bestanden bzw. mit mindestens "ausreichend" (4,0) bewertet sein.</p>
Credit Points:	6
Grade:	<p>The Grade is generated from the examination result(s) with the following weights (w):  KA* [w: 2]  AP*: Exercises - homework computer courses [w: 1]</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p>
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies. (120 h are spent on preparation, to prepare reports and homework in relation to the exercises and self study)


Data:	HYGWMA. MA. / Examination number: -	Version: 04.07.2018 	Start Year: SoSe 2019
Module Name:	<b>Hydrogeology for GW-Management - Advanced</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Hoth, Nils / Dr.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a>		
Duration:	1 Semester(s)		
Competencies:	Students gain profound knowledge in karsthydrogeology and karst research. Furthermore his skills with respect to handling of data, multiple statistical evaluation will be enhanced to enable him solving hydrogeological problems on his own. Additional his team competence skills will be enforced.		
Contents:	<ul style="list-style-type: none"> <li>- detailed understanding of hydrological aspects of water cycle (measurement of the different parts)</li> <li>- estimation of GW recharge</li> <li>- hydrological processes in arid, semi-arid zones</li> <li>- aspects of irrigation methods</li> <li>- Karst hydrogeology (different types of karst, karst phenomena, relevant karst features, karst indicators, karstifiable rocks, physical/chemical dissolution)</li> <li>- flow and transport in karst systems (contaminations, tracers, protection), regional examples of different karst systems</li> <li>- River bank filtration</li> <li>- geophysical exploration techniques and practical aspects of borehole logging</li> <li>- data evaluation and GIS-based data handling</li> <li>- 2D data analysis, kriging, basics of variogram-analysis</li> </ul> Practical exercises: to GIS-based data handling and 2D - data analysis (spatial interpolation)		
Literature:	Dreybrodt (1988) Processes in Karst Systems Physics, Chemistry and Geology, Goldscheider & Drew (2007) Methods in Karst Hydrogeology Simmers (2003) Understanding water in a dry environment - hydrological processes in arid and semi-arid zones Kitanidis (1997) Introduction to geostatistics - applications to hydrogeology Ray et al. (2003) Riverbank filtration - improving source water quality		
Types of Teaching:	S1 (SS): Lectures (2 SWS) S1 (SS): Exercises (1 SWS)		
Pre-requisites:	<b>Recommendations:</b> <a href="#">Hydrogeology for GW-Management - Basics, 2018-07-04</a> Basic knowledge in statistics and data management.		
Frequency:	yearly in the summer semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min] PVL: Homework - assignments PVL have to be satisfied before the examination. Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Hausaufgaben PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		


Credit Points:	4
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]
Workload:	The workload is 120h. It is the result of 45h attendance and 75h self-studies. (75 h are spent with preparation, preparing home work and report and self study).

Data:	HYGWMB. MA. / Examination number: -	Version: 04.07.2018 	Start Year: WiSe 2018
Module Name:	<b>Hydrogeology for GW-Management - Basics</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Hoth, Nils / Dr.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a>		
Duration:	1 Semester(s)		
Competencies:	<p>The student will gain general knowledge to characterise and investigate hydrogeological systems. So he will be able to solve relevant hydrogeological tasks.</p> <p>He will be able to select appropriate techniques for investigation and data evaluation. Furthermore he will gain knowledge around groundwater protection measures.</p>		
Contents:	<p>Lecture:</p> <ul style="list-style-type: none"> <li>- general understanding of subsurface flow-processes (water-saturated GW-zone and water-unsaturated "soil-zone").</li> <li>- porous media behaviour of loose rock aquifers (differences of kf-value versus permeability)</li> <li>- fissure/ fracture driven preferential flow in hard rock bodies</li> <li>- methods to estimate relevant flow parameters (challenges around)</li> <li>- pumping test (design, performance) and evaluation</li> <li>- saline water intrusion (fresh-saltwater interface at coastal sites).</li> <li>- Ground water flow to wells and drilling of wells (well development, rehabilitation)</li> <li>- basic understanding of acid mine drainage generation</li> <li>- Well head protection zones – general GW protection</li> <li>- European water frame work</li> </ul> <p>Practical exercises:</p> <p>Estimation of relevant aquifer parameters (kf-values)</p> <p>Characterisation of water samples</p> <p>Sampling (low flow sampling), filtration, impact of construction materials on monitoring wells,</p> <p>Classification of loose rock materials</p> <p>hXRF-measurements as basis for qualitative characteristics of loose rock and dump/ tailings materials</p>		
Literature:	<p>Fetter (1993): Applied Hydrogeology.</p> <p>Domenico &amp; Schwartz (1998): Physical and Chemical Hydrogeology.</p> <p>USGS (2004) Water Supply Paper.</p> <p>Sterret (2007): Groundwater and Wells.</p> <p>DWGW-Richtlinie W101</p>		
Types of Teaching:	<p>S1 (WS): Lectures (2 SWS)</p> <p>S1 (WS): hydrogeology - practica and exercises / Practical Application (2 SWS)</p>		
Pre-requisites:	<p><b>Recommendations:</b></p> <p>Basic knowledge in Geology, Applied Geosciences</p>		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam.</p> <p>The module exam contains:</p> <p>KA* [90 min]</p> <p>AP*: Practica and exercises</p> <p>* In modules requiring more than one exam, this exam has to be passed</p>		




	<p>or completed with at least "ausreichend" (4,0), respectively.</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst:</p> <p>KA* [90 min]</p> <p>AP*: Praktikum und Übungen</p> <p>* Bei Modulen mit mehreren Prüfungsleistungen muss diese Prüfungsleistung bestanden bzw. mit mindestens "ausreichend" (4,0) bewertet sein.</p>
Credit Points:	6
Grade:	<p>The Grade is generated from the examination result(s) with the following weights (w):</p> <p>KA* [w: 2]</p> <p>AP*: Practica and exercises [w: 1]</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p>
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies. (120 h are spent on preparation for the classes, preparing the reports and self study)


Data:	Examination number: 60517	Version: 06.07.2016 	Start Year: WiSe 2016
Module Name:	<b>Information Management</b>		
(English):	Information Management		
Responsible:	<a href="#">Felden, Carsten / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Felden, Carsten / Prof. Dr.</a>		
Institute(s):	<a href="#">Institute of Information Management and Management Information Systems</a>		
Duration:	1 Semester(s)		
Competencies:	Students get a general view to understand integration of business and technology in companies. This course provides a comprehensive and integrative understanding of essential new technologies, information system applications, and their impact on business models and managerial decision making. From a managerial perspective, the course addresses an application of concepts regarding hardware, software, and data organization. The students will understand and apply basics of information systems with a focus on economic issues as well as the significance of information systems for companies and the practical information and communication technologies to increase the efficiency and effectiveness of information systems.		
Contents:	<ol style="list-style-type: none"> <li>1. Introduction: the domain of business information systems</li> <li>2. Organizations and systems</li> <li>3. Data, information, and knowledge</li> <li>4. Information systems, and organizational infrastructure</li> <li>5. Communication infrastructure</li> <li>6. ICT systems infrastructure</li> <li>7. The business environment</li> <li>8. Electronic business, electronic commerce, and electronic government</li> <li>9. Assessing the use and impact of information systems</li> <li>10. Planning, strategy, and management</li> <li>11. Services, projects and operations</li> <li>12. Information systems development</li> <li>13. Successful informatics practice</li> </ol>		
Literature:	Beynon-Davies, P.: Business Information System, Palgrave Macmillan edition 2, London, 2013 Bocij, P.: Business Information System, Global Edition, Pearson Education LTD, Harlow, 2014 Laudon, K.; Laudon, J.: Management Information Systems, edition 14, Pearson Education, Prentice Hall, 2015.		
Types of Teaching:	Lecture / Lectures (2 SWS) Recitation / Exercises (2 SWS)		
Pre-requisites:			
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min]		
	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min]		
Credit Points:	6		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]		
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies.		

Data:	INTMAN. MA. Nr. 2072 / Examination number: 62007	Version: 29.05.2015 	Start Year: WiSe 2016
Module Name: (English):	<b>International Business and Management</b>		
Responsible:	<a href="#">Stephan, Johannes / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Stephan, Johannes / Prof. Dr.</a>		
Institute(s):	<a href="#">Professor of International Resource Policy and Economic Development</a>		
Duration:	1 Semester(s)		
Competencies:	<p>The intention of this module is to teach students the particularities of management of firms where several international markets are involved. This helps to-be-managers to prepare for the particular challenges and problems involved in the internationalisation of firms. The first part of this course focuses on explaining the existence of the multinational enterprise by generalising the theory of the firm and its characterisation on the one side and particularities of management in multinational enterprises on the other. The management part of the course analyses strategies of entry into foreign markets, including entry modes, entry timing and the location from an institutional perspective and by use of case studies. The third part of the course is concerned with the management of knowledge and R&amp;D both within the multinational enterprise and between the multinational enterprise and its host economies. This is discussed in terms of effects of knowledge and R&amp;D management on subsidiary development and on technology transfer externalities (spillovers).</p>		
Contents:	<ol style="list-style-type: none"> <li>1. Economic theories of internationalisation and TNC <ul style="list-style-type: none"> <li>◦ Static vs dynamic theories</li> <li>◦ Internalisation-theories and asset-based theories</li> </ul> </li> <li>2. International management and entry strategies <ul style="list-style-type: none"> <li>◦ Network theory</li> <li>◦ Choice of location and time of entry</li> <li>◦ Entry modes, control and market power</li> <li>◦ Internationalisation of knowledge</li> </ul> </li> <li>3. Economic analysis of TNCs and policy-implications <ul style="list-style-type: none"> <li>◦ FDI and host country effects, national innovation systems</li> <li>◦ TNCs and Intellectual Property Rights</li> <li>◦ Foreign Direct Investment policies</li> </ul> </li> </ol>		
Literature:	<p>Cavusgil, S.T., G. Knight, and J.R. Riesenberger (2008), International Business - Strategy, Management, and the New Realities, 1<sup>st</sup> ed., Pearson International, Prentice Hall.</p> <p>Dunning, J. and S.M. Lundan (2008), Multinational Enterprises and the Global Economy, 2nd edition. Cheltenham: Edward Elgar.</p> <p>Letto-Gillies, G. (2005) Transnational Corporations and International Production - Concepts, Theories and Effects. Cheltenham: Edward Elgar.</p> <p>Peng, M.W. and K. E. Meyer (2009) International Business, 1st ed., Cengage Learning.</p> <p>Pitelis, C and R. Sudgen (eds) (2000) The Nature of the Transnational Firm. London: Routledge.</p>		
Types of Teaching:	<p>S1 (WS): Lectures (2 SWS) S1 (WS): Exercises (2 SWS)</p>		
Pre-requisites:	<p><b>Recommendations:</b> <a href="#">Makroökonomik, 2009-08-18</a> <a href="#">Mikroökonomische Theorie, 2014-03-05</a> Knowledge at Bachelor level in business administration is required.</p>		

Frequency:	yearly in the winter semester
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [120 min] AP: Presentation [15 min]
	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [120 min] AP: Präsentation [15 min]
Credit Points:	6
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 4] AP: Presentation [w: 1]
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies.

Data:	IDEVRES. MA. Nr. 3417 / Examination number: 62005	Version: 07.02.2017 	Start Year: SoSe 2013
Module Name:	<b>International Development and Resources</b>		
(English):			
Responsible:	<a href="#">Stephan, Johannes / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Stephan, Johannes / Prof. Dr.</a>		
Institute(s):	<a href="#">Professor of International Resource Policy and Economic Development</a>		
Duration:	1 Semester(s)		
Competencies:	<p>Students will be able to understand the implications of management of firms in the environment of developing economies. Companies involved in a region that is characterised by much lower levels of economic development face particular challenges in the management: they have to consider the implications that development strategies, both national and coordinated by international organisations and NGOs, have on their activities. Of particular relevance in developing economies is the role of natural resources that are often abundant and currently their most precious source of national welfare. Students acquire the understanding that natural resources can easily turn into a curse, if they are not included into a coherent national development policy. Those include most prominently export-oriented policies, state-aid policies and the development of national champions, the attraction of foreign direct investments, and incentive systems for outward investment.</p>		
Contents:	<p>Part I - Economic development and emerging markets  I.1 Foreign exchange and economic development  I.2 Reminder of trade theory and politics  I.3 Characteristics of developed, emerging, and developing countries  I.4 Theories of Economic Development: Overview  I.5 Development Policies: Approaches, Failures, and New Consensus?  I.6 The Chinese way: infrastructure for development  Part II - The role of natural resources for economic development  II.1 The concept of the resource curse in general  II.2 The Salter-Swan model  II.3 Concepts for a benign role of resources for development ("Successful resource-based development")  II.4 The economics of export restrictions of depletable resources (example rare earth, other critical resources)</p>		
Literature:	<p>Todaro, M. P. (2006): Economic Development, 9th edition, Addison Wesley, New York  World Bank Development Report (current years)  Various recent Journal articles from e.g. "World Development"; "World Bank Economic Review"; "Journal of Development Economics".  Andersen, A. D. and B. Johnson (2014) Monocausalism versus Systems Approach to Development ' The Possibility of Natural Resource-based Development. Institutions and Economies, Vol. 6, No. 2, pp. 27-54.  van den Ploeg (2011) Natural Resources: Curse or Blessing? Journal of Economic Literature 49/2, pp. 366-420.</p>		
Types of Teaching:	S1 (SS): Lectures (2 SWS) S1 (SS): Exercises (2 SWS)		
Pre-requisites:	<b>Recommendations:</b> <a href="#">Makroökonomik, 2009-08-18</a> <a href="#">Mikroökonomische Theorie, 2014-03-05</a> Knowledge at Bachelor level in business administration is required.		
Frequency:	yearly in the summer semester		
Requirements for Credit	For the award of credit points it is necessary to pass the module exam.		

Points:	The module exam contains: KA [120 min] AP: Presentation [15 min]
	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [120 min] AP: Präsentation [15 min]
Credit Points:	6
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 4] AP: Presentation [w: 1]
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies.

Data:	MTGMAN. MA. Nr. 3204 / Examination number: -	Version: 04.07.2018 	Start Year: SoSe 2010
Module Name:	<b>Master Thesis Groundwater Management</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):			
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a>		
Duration:	1 Semester(s)		
Competencies:	<p>The students learn to work fully independent on a research topic. Therefore they have to use their knowledge from "Geo-Scientific Communication", mainly how to structure their work. Furthermore they will enforce their skills with respect to handling large data sets and to develop an investigation strategy from different technical points of view. So in the end they have to combine all their knowledge they got in relation to hydrogeological, hydrochemical and management aspects, as well as to deal with a general argumentation line. Additionally their team competencies and time management skills will be improved.</p>		
Contents:	Of course this depends on the detailed topic. Possible topics may be related to hydrogeological or hydrogeochemical aspects, as well as applied management or business administration questions in relation to groundwater (risk assessment studies, management concepts).		
Literature:	Depends on the research topic. For the general strategy to structure the work and how to write the MSc-thesis the acquired knowledge from "Geo-Scientific Communication" can and has to be used.		
Types of Teaching:	S1: Master thesis / Thesis (26 Wo)		
Pre-requisites:	<p><b>Mandatory:</b>  Themenausgabe: Abschluss von Modulen nach dieser Ordnung im Umfang von mind. 80 LP (Issue of the topic of the thesis: Modules totalling at least 80 CP according to the exam regulations have to be completed)Kolloquium: Abschluss aller Module (Oral defense of the thesis with discussion: all modules have to be completed)</p>		
Frequency:	constantly		
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam. The module exam contains:  AP*: Thesis  AP*: Oral defense of the thesis with discussion</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst:  AP*: Masterarbeit  AP*: Verteidigung der Masterarbeit mit Diskussion</p> <p>* Bei Modulen mit mehreren Prüfungsleistungen muss diese Prüfungsleistung bestanden bzw. mit mindestens "ausreichend" (4,0) bewertet sein.</p>		
Credit Points:	30		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): AP*: Thesis [w: 2]		


AP\*: Oral defense of the thesis with discussion [w: 1]


\* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.


Workload:

The workload is 900h.




Data:	MRS Lab. MA. Nr. / Examination number: -	Version: 23.07.2018 	Start Year: WiSe 2018
Module Name:	<b>Microbiology for Resource Scientists: Lab Course</b>		
(English):			
Responsible:	<a href="#">Schlömman, Michael / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Kaschabek, Stefan / Dr.</a>		
Institute(s):	<a href="#">Institute of Biosciences</a>		
Duration:	1 Semester(s)		
Competencies:	The students will have obtained experience in basic microbiological methods. They are able to prepare sterile media, to cultivate microorganisms and to enrich as well as isolate pure cultures. They are able to follow the growth of cultures and to analyse substrate conversion and product formation during cultivation.		
Contents:	Working sterile; preparation of minimal and complex media; pouring of plates; enrichment, isolation and identification of microorganisms. Experiments on various metabolic properties of microorganisms (e.g. leaching of sulfides). Turbidity measurement, HPLC analyses, colorimetric determination of ions in solution.		
Literature:	Strete: Mikrobiologisches Grundpraktikum Steinbüchel & Oppermann-Sanio: Mikrobiologisches Praktikum		
Types of Teaching:	S1 (WS): Practical Application (5 SWS)		
Pre-requisites:	<b>Mandatory:</b> <a href="#">Microbiology for Resource Scientists: Lecture, 2018-07-03</a> Alternatively: Module "Grundlagen der Biochemie und Mikrobiologie" or equivalent <b>Recommendations:</b> Knowledge in general, inorganic and organic chemistry.		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: PVL: Online test on the description of the experiments AP: Protocols for all the experiments performed PVL have to be satisfied before the examination. Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: PVL: Online-Test zu den Versuchsbeschreibungen (Skripten) AP: Protokolle über alle durchgeführten Versuche PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Credit Points:	3		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): AP: Protocols for all the experiments performed [w: 1]		
Workload:	The workload is 90h. It is the result of 75h attendance and 15h self-studies.		


Data:	MRSLEC. BA. Nr. / Examination number: -	Version: 03.07.2018 	Start Year: WiSe 2018
Module Name:	<b>Microbiology for Resource Scientists: Lecture</b>		
(English):			
Responsible:	<a href="#">Schlömman, Michael / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Schlömman, Michael / Prof. Dr.</a>		
Institute(s):	<a href="#">Institute of Biosciences</a>		
Duration:	1 Semester(s)		
Competencies:	Students will have obtained a basic understanding of the functioning of a microbial cell. Specifically they will have obtained an understanding of the diversity of microbial energy metabolism, of the effects of microbial activities on the environment and how that can be used for the winning of metals and oil and for mine-water treatment. Students understand how microorganisms are classified into certain taxa, and they will have some insight into molecular tools for the classification and for the prediction of properties of the microorganisms.		
Contents:	Eukaryotic versus prokaryotic cell; important biomolecules (carbohydrates, lipids, proteins, nucleic acids); Basics of fundamental cell processes (replication, transcription, translation); structure of the microbial cell, microbial taxonomy and phylogeny; growth of microorganisms; principles of energy metabolism; microbial activities in the carbon cycle: energy metabolism on the example of aerobic degradation of carbohydrates; simple fermentations; aerobic degradation of alkanes; CO <sub>2</sub> fixation in photosynthetic and lithotrophic microorganisms; activities in the nitrogen cycle (nitrification, denitrification, N <sub>2</sub> fixation); microbial iron oxidation and reduction; microbial oxidation and reduction of sulfur compounds.		
Literature:	Madigan, Martinko, Stahl, Clark: Brock - Microbiology Reineke & Schlömman: Umweltmikrobiologie		
Types of Teaching:	S1 (WS): All main topics are also covered in the German lecture "Grundlagen der Biochemie und Mikrobiologie" which is available online and will be subtitled in English. (E-learning platform: OPAL) / Lectures (2 SWS)		
Pre-requisites:	<b>Recommendations:</b> Background in general, inorganic and organic chemistry; high school knowledge in biology		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min]		
	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min]		
Credit Points:	3		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]		
Workload:	The workload is 90h. It is the result of 30h attendance and 60h self-studies.		


Data:	MWFT. MA. / Examination number: -	Version: 04.07.2018 	Start Year: SoSe 2019
Module Name:	<b>Mine Water I - Formation and Treatment</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Hoth, Nils / Dr.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a>		
Duration:	1 Semester(s)		
Competencies:	The student will gain general knowledge about the formation of acidic mine waters and how to investigate the detailed behaviour. Furthermore he gets knowledge about treatment strategies. So in the end he is able to choose proper measures for partial avoiding of acidic mine water formation and he can choose suitable and site specific treatment strategies		
Contents:	<p>Lecture:</p> <ul style="list-style-type: none"> <li>- Basics of sulphide weathering - Acid Mine and Acid Rock Drainage (AMD/ ARD) generation</li> <li>- Relevant buffer systems</li> <li>- General aspects of water treatment of different mine waters</li> <li>- Examples of special case site studies - technology of the treatment</li> <li>- Primary, secondary and tertiary measures against acidification for different mine sites</li> </ul> <p>Exercises:</p> <ul style="list-style-type: none"> <li>- Detailed explanation of investigation strategies to characterise and balance acid mine drainage behaviour for dump and tailings bodies</li> <li>- Detailed explanation of water treatment systems for different mine sites</li> <li>- Preparing an report about investigation of a given test site. Figure out the idea and planning of a water treatment for a given special mine water composition.</li> </ul>		
Literature:	<p>JAMBOR, J.L.&amp; BLOWES, D.W.: Short Course Handbook on Environmental Geochemistry of Sulfid Mine Wastes.  Younger (2002): Mine water hydrogeology and geochemistry.  Beale &amp; Read (2013) Evaluating water in pit slope stability  Wolkersdorfer (2013) Grubenwasserreinigung - Verfahren und Vorgehensweise</p>		
Types of Teaching:	S1 (SS): Lectures (2 SWS) S1 (SS): Exercises (1 SWS)		
Pre-requisites:	<b>Recommendations:</b> Basic knowledge in hydrogeochemistry		
Frequency:	yearly in the summer semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min] PVL: Exercises and homework PVL have to be satisfied before the examination. Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Übungen und Hausaufgaben PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Credit Points:	6		
Grade:	The Grade is generated from the examination result(s) with the following weights (w):		

	KA [w: 1]
Workload:	The workload is 180h. It is the result of 45h attendance and 135h self-studies. (135 h are spent on preparation for the classes, preparing the report and with self study)

Data:	MWDTP. MA. / Examination number: -	Version: 04.07.2018 	Start Year: WiSe 2018
Module Name:	<b>Mine Water II - Dewatering, Technical Devices, Projects</b>		
(English):			
Responsible:	<a href="#">Drebenstedt, Carsten / Prof. Dr. Hoth, Nils / Dr.</a>		
Lecturer(s):	<a href="#">Hoth, Nils / Dr.</a>		
Institute(s):	<a href="#">Institute of Mining and Special Civil Engineering</a>		
Duration:	1 Semester(s)		
Competencies:	The students will gain knowledge about inflowing waters to open cast, open pits. They are able to deal with water balances and to characterise the status of slope stabilities in relation to pore pressures. They have an understanding how the dewatering system (pumps etc.) has to be chosen in relation to the site specific situation. Furthermore they are able to build up a site specific strategy to investigate, characterise, trace the inflowing waters to open pits or underground mines hydrogeochemically.		
Contents:	<p>Lecture:</p> <ul style="list-style-type: none"> <li>- Water balances of open casts</li> <li>- Dewatering aspects under consideration of pit development</li> <li>- Pore pressures and slope stability and slope failures</li> <li>- Examples of water handling systems at different mine sites</li> <li>- Detailed explanation of investigation strategies/ results of different projects</li> <li>- Water inflow balances for test sites - how to deal with data shortage</li> <li>- Operational cost differences related to dewatering systems</li> <li>- Open pit or underground mine inflow systems - hydrogeochemical investigations (trace metals, REE, isotopes, Tracers ...)</li> </ul> <p>Exercises:</p> <ul style="list-style-type: none"> <li>- Calculate surface run-off</li> <li>- Water related problems - influence to mining operation/ Impact to operational costs</li> <li>- Open Pit under extreme climate - groundwater and surface water inflow</li> <li>- Rough dewatering estimation by easy analytical solutions</li> </ul>		
Literature:	Beale & Read (2013) Evaluating water in pit slope stability Herth & Arndts (1995) Theorie und Praxis der Grundwasserabsenkung		
Types of Teaching:	S1 (WS): Lectures (2 SWS) S1 (WS): Exercises (1 SWS)		
Pre-requisites:	<b>Recommendations:</b> <a href="#">Mine Water I - Formation and Treatment, 2018-07-04</a>		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min] PVL: Exercises and homework PVL have to be satisfied before the examination. Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Übungen und Hausaufgaben PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Credit Points:	4		
Grade:	The Grade is generated from the examination result(s) with the following		


	weights (w): KA [w: 1]
Workload:	The workload is 120h. It is the result of 45h attendance and 75h self-studies. (75 h are spent on preparation for the classes, homework and with self study)

Data:	OPMAN. MA. Nr. 2970 / Examination number: 61304	Version: 06.07.2015 	Start Year: WiSe 2016
Module Name: (English):	<b>Operations Management</b>		
Responsible:	<a href="#">Höck, Michael / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Höck, Michael / Prof. Dr.</a>		
Institute(s):	<a href="#">Professor of Industrial Management, Production Management and Logistics</a>		
Duration:	1 Semester(s)		
Competencies:	Foremost, the module aims to convey to the student problem-solving competencies with a view to putting the student in a position to analyse the complex questions in operations management, to structure them, and to develop solution alternatives.		
Contents:	This course addresses the management of operations in manufacturing and service firms. Diverse activities, such as determining the size and type of production process, purchasing the appropriate raw materials, planning and scheduling the flow of materials and the nature and content of inventories, assuring product quality, and deciding on the production hardware and how it gets used, comprise this function of the company. Managing operations well requires both strategic and tactical skills. During the term, we will consider such topics as: process analysis, workforce issues, materials management, quality and productivity, technology, and strategic planning, together with relevant analytical techniques. This course will provide a survey of these issues.		
Literature:	Davis, M. & Heineke, J. (2005): Operations Management, 5/e, McGraw-Hill Cachon & Terwiesch (2006): Matching Supply and Demand, McGraw-Hill Stevenson (2007): Operations Management, 9/e, McGraw-Hill.		
Types of Teaching:	S1 (WS): Lectures (2 SWS) S1 (WS): Exercises (2 SWS)		
Pre-requisites:	<b>Recommendations:</b> None		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min] PVL: Case Studies PVL have to be satisfied before the examination. Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min] PVL: Fallstudien PVL müssen vor Prüfungsantritt erfüllt sein bzw. nachgewiesen werden.		
Credit Points:	6		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]		
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies. Self-study consists of preparation and review of the lectures, independent work on case studies, as well as preparation for the written test.		

Data:	OMIS. MA. Nr. 3202 / Examination number: 62101	Version: 11.01.2017 	Start Year: WiSe 2010
Module Name:	<b>Project Management</b>		
(English):			
Responsible:	<a href="#">Jacob, Dieter / Prof. Dr.</a>		
Lecturer(s):	<a href="#">Müller, Clemens / Master</a>		
Institute(s):	<a href="#">Professor of Construction Management</a>		
Duration:	1 Semester(s)		
Competencies:	Students obtain an understanding of the concept of project management and become familiar with important tasks in relation to the management of projects.		
Contents:	This course presents the principles and techniques of managing projects, primarily engineering projects, from the owner's feasibility study through design and development to completion. It emphasises project management during the early stages of project development because it is at that point that the ability to influence the quality, cost and time of a project is at its highest. It includes project scope definition, development of work plan, planning and scheduling, procurement strategies and highlights the management of the three basic components of a project: quality/scope, budget/cost and time/schedule. A simulation exercise is included to demonstrate working in a group and highlight the importance of communication against a backdrop of determining procurement strategy.		
Literature:	<ul style="list-style-type: none"> <li>• Schelle, Heinz/ Ottmann, Roland/ Pfeiffer, Astrid: Project Manager. German Association for Project Management (GPM), Member of the International Project Management Association (IPMA), 2006.</li> <li>• Kerzner, Harold: Project Management – A Systems Approach to Planning, Scheduling, and Controlling, associated with the Project Management Institute (PMI), 11th Ed, 2013.</li> <li>• The Chartered Institute of Building – Project Management for Construction and Development, 2014.</li> <li>• Klee, Lukas: International Construction Contract Law, 1<sup>st</sup> Ed, 2014.</li> <li>• Peter W.G. Morris/ George H. Hough – The Anatomy of Major Projects: A Study of the Reality of Project Management. London, 1987.</li> <li>• Merrow, Edward W. – Industrial Megaprojects: Concepts, Strategies, and Practices for Success. New Jersey, 2011.</li> <li>• Köchendorfer, Bernd; Liebchen, Jens; Viering, Markus G.: Bau-Projektmanagement: Grundlagen und Vorgehensweisen, 4th Ed, 2010.</li> <li>• Berner, Fritz; Kochendorfer, Bernd; Schach, Rainer: Grundlagen der Baubetriebslehre 2 – Baubetriebsplanung, 2nd Ed, 2014</li> <li>• Uher, Thomas; Adam, Zantis; Zantis: Programming and Scheduling Techniques, 2nd Ed, 2011.</li> <li>• Vanhoucke, Mario: Project Management with Dynamic Scheduling – Baseline Scheduling, Risk Analysis and Project Control, 2<sup>nd</sup> Ed, 2013.</li> <li>• Jacob, Dieter; Müller, Clemens: Estimating in Heavy Construction: Roads, Bridges, Tunnels, Foundations, 1<sup>st</sup> Ed, 2016.</li> </ul>		
Types of Teaching:	S1 (WS): Exercises (1 SWS) S1 (WS): Lectures (1 SWS)		
Pre-requisites:	<b>Recommendations:</b>		



	No pre-requisites are required.
Frequency:	yearly in the winter semester
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: KA [90 min]
	Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: KA [90 min]
Credit Points:	3
Grade:	The Grade is generated from the examination result(s) with the following weights (w): KA [w: 1]
Workload:	The workload is 90h. It is the result of 30h attendance and 60h self-studies.

Data:	RESMGT. MA. Nr. 2082 / Examination number: 62407	Version: 31.05.2018 	Start Year: WiSe 2016
Module Name:	<b>Resource Management</b>		
(English):			
Responsible:	<a href="#">Fröhling, Magnus / Prof.</a>		
Lecturer(s):	<a href="#">Fröhling, Magnus / Prof.</a>		
Institute(s):	<a href="#">Professor of Ressourcemanagement</a>		
Duration:	1 Semester(s)		
Competencies:	<p>Students</p> <ul style="list-style-type: none"> <li>• explain the resource related corporate management tasks, structure these,</li> <li>• use selected tools and methods and</li> <li>• explain the interplay between resource management and related tasks such as operations and supply chain management.</li> </ul>		
Contents:	<p>The course deals with the field of resource management from an industrial perspective. This comprises resource related management tasks, methods and tools to solve these and how they are embedded within functions and processes of companies. Thereby the focus lies on repetition factors mineral raw materials and energy carriers, renewable raw materials and energy carriers as well as secondary raw materials and energy carriers.</p>		
Literature:	<ul style="list-style-type: none"> <li>• Bausch (2009): Handbook Utility Management, Springer</li> <li>• Thiede (2012): Energy Efficiency in Manufacturing Systems, Springer</li> <li>• Thonemann (2015): Operations Management, Pearson</li> <li>• Vrat (2014): Materials Management, Springer</li> <li>• Wagner, Enzler (2006) Material Flow Management, Physica</li> </ul>		
Types of Teaching:	<p>S1 (WS): Lectures (2 SWS) S1 (WS): Exercises (2 SWS)</p>		
Pre-requisites:			
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	<p>For the award of credit points it is necessary to pass the module exam. The module exam contains: AP*: Case study with oral presentation KA* [90 min]</p> <p>* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.</p> <p>Voraussetzung für die Vergabe von Leistungspunkten ist das Bestehen der Modulprüfung. Die Modulprüfung umfasst: AP*: Fallstudie mit mdl. Präsentation KA* [90 min]</p> <p>* Bei Modulen mit mehreren Prüfungsleistungen muss diese Prüfungsleistung bestanden bzw. mit mindestens "ausreichend" (4,0) bewertet sein.</p>		
Credit Points:	6		
Grade:	<p>The Grade is generated from the examination result(s) with the following weights (w): AP*: Case study with oral presentation [w: 1] KA* [w: 4]</p> <p>* In modules requiring more than one exam, this exam has to be passed</p>		

	or completed with at least "ausreichend" (4,0), respectively.
Workload:	The workload is 180h. It is the result of 60h attendance and 120h self-studies.

Freiberg, den 24. September 2018

gez.  
Prof. Dr. Klaus-Dieter Barbknecht  
Rektor

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