

SEA-EU Marine Module description

Module offer for the SEA-EU 'Virtual Marine Open Elective Modules'

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| Module/Course Name | Introduction to Ocean Sustainability | |
| Module/Course Code | mageoMACSUS (CAU Kiel) | |
| Field of Education | Generic programmes and qualifications | <input type="checkbox"/> |
| | Education | <input type="checkbox"/> |
| | Arts and humanities | <input type="checkbox"/> |
| | Social sciences, journalism and information | <input type="checkbox"/> |
| | Business, administration and law | <input type="checkbox"/> |
| | Natural sciences, mathematics and statistics | <input checked="" type="checkbox"/> |
| | Information and Communication Technologies | <input type="checkbox"/> |
| | Engineering, manufacturing and construction | <input type="checkbox"/> |
| | Agriculture, forestry, fisheries and veterinary | <input type="checkbox"/> |
| | Health and welfare | <input type="checkbox"/> |
| | Services | <input type="checkbox"/> |
| Study programme | MSc Marine Geosciences | |
| Number of ECTS and total student workload | 5 ECTS, and 150 hours total | |
| Contact hours and Independent study hours | 15 x 2 hours contact hours (30 hours) | |
| | independent study: 30 hours study (reading), 10 hours literature research, 10 hours online research (UN Conference), 70 hours for final report (policy brief), no written exam | |
| Typology of contact hours | 30 hours in class: (incl. ca 1.5 h lecture and 0.5h discussion in group) | |
| Academic Year | 2025 | |
| Semester / Specific period | summer semester (16.4. – 11.7.2025) | |
| | Wednesdays 16:00-18:00 and Fridays, 12:00-14:00 dates: 16.4., 7.5., 9.5., 14.5., 16.5., 21.5., 23.5., 28.5., 4.6. (14-16hrs instead), 6.6., 18.6., 20.6., 25.6., 2.7., 4.7. | |
| Teaching Language | English | |

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| Delivery mode | hybrid |
| Responsible Lecturer | Name: Dr. Nina Keul E-Mail: nina.keul@ifg.uni-kiel.de |
| Other lecturers | there is 10 other lecturers (roughly one per session), to introduce the full scope of Ocean Sustainability |
| Learning outcomes | <p>Students are able to describe the basic concepts of ocean sustainability. Furthermore, students will be familiar with innovative and solution-orientated opportunities for sustainability policy that reduces ocean pressures, enhance resilience and safeguards human prosperity derived from the ocean.</p> <p>Using this knowledge, students will be able to analyse sustainability related topics in an interdisciplinary setting, developing an important skill not only for academic careers, but also for engagement with societal actors and knowledge holders outside academia.</p> |
| Course contents | <p>The module will concentrate on integrated research areas that focus on the grand challenges faced in attaining ocean sustainability. Students will attend a lecture where lecturers of different SEA-EU universities will present current topics on ocean sustainability centering around Ocean Food, Ocean Floor Resources, Ocean Ethics, Ocean Disasters, The Law of the Seas, and “Blue Economy”.</p> <p>Students will further explore these topics within a seminar, where they will discuss sustainability topics with fellow students.</p> |
| Prerequisites and/or recommended academic background | The key to future ocean sustainability lies in understanding the ocean and treating it as an integrated system with diverse social and natural interactions. Therefore, we target students from different marine disciplines: e.g. but not limited to: Marine Geosciences, Climate Physics or Biological Oceanography. |
| Assessment | Students are required to write a policy brief at the end of the lecture series. This is a key tool to present research and recommendations to a non-specialized audience. They serve as a vehicle for providing evidence-based policy advice to help readers make informed decisions. |
| Main bibliography | <p>Individual reading material will be placed on learning platform at least 2 weeks prior to lecture. Here a few interesting materials from the last year:</p> <ul style="list-style-type: none"> • IPCC Special Report 2018 <p>Global Warming of 1.5°C</p> <ul style="list-style-type: none"> • World Ocean Review 8 2024 |

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| | <p>The Ocean – A Climate Champion? How to Boost Marine Carbon Dioxide Uptake (WOR 8)</p> <ul style="list-style-type: none"> • 6th Assessment Report 2021 <p>AR6 Climate Change 2021: The Physical Science Basis</p> <ul style="list-style-type: none"> • World Ocean Review 7 2021 <p>The Ocean, Guarantor of Life – Sustainable Use, Effective Protection (WOR 7)</p> <ul style="list-style-type: none"> • World Ocean Review 4 2015 <p>Sustainable Use of Our Oceans – Making Ideas Work (WOR 4)</p> <ul style="list-style-type: none"> • UNCLOS <p>UNCLOS: The United Nations Convention on the Law of the Sea, also called the Law of the Sea Convention or the Law of the Sea Treaty, is an international agreement that establishes a legal framework for all marine and maritime activities.</p> <ul style="list-style-type: none"> • ITLOS Advisory Opinion on Climate Change <p>On May 21, 2024, the International Tribunal for the Law of the Sea (ITLOS) delivered a long-awaited Advisory Opinion on climate change and international law. This marks the first time that an international tribunal has issued an advisory opinion on State obligations regarding climate change mitigation. The Advisory Opinion addresses several key questions regarding application of the United Nations Convention on the Law of the Sea (UNCLOS) in the context of climate change, including the interaction between UNCLOS and the global climate change regime, and the specific obligations of States to reduce climate-damaging greenhouse gas (GHG) emissions.</p> <ul style="list-style-type: none"> • FAO Fish stocks <p>Overview of the status of fishery resources FYI: FAO has a huge database and many publications on fisheries, I am just posting the link above as a starting point, you need to explore a bit</p> <ul style="list-style-type: none"> • Fish quotas <p>and here a write up about the scientific fishing quota recommendation and what happens to it</p> <ul style="list-style-type: none"> • Federal Government for a Carbon Management Strategy <p>Germany aims to become one of the first major climate-neutral industrialised countries by 2045. The Federal Government has made considerable efforts in the last two</p> |
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| | <p>years to this end, for example on the expansion of renewable energy, the decarbonisation of industry, the ramp-up of the hydrogen economy, the roll-out of e-mobility, the strengthening of emissions trading, the acceleration of planning and approvals, and the heat transition in the buildings sector. The over- arching goal is the avoidance of emissions. Decarbonisation is and will remain at the heart of climate action, i.e. the phase-out not just of coal, but of fossil energy in general.</p> <ul style="list-style-type: none"> • <u>GEOSTOR project</u> <p>GEOSTOR aims to find prospective areas for CO2 storage and design a roadmap for the implementation of CO2 storage within the German North Sea</p> |
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See the (preliminary) module schedule on the next page.

Schedule

The module runs in summer semester at Kiel University (16 Apr-11 July 2025) with hybrid live sessions (i.e. on-site in Kiel with online participants from SEA-EU) on Wednesdays 16-18 CEST and Fridays 12-14 CEST (with a few exceptions). Please see the (preliminary) schedule below for exact dates, (SEA-EU) guest lecturers and topics.

| Date | Topic | Lecturer |
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| Wed. 16.4. 16-18h | 1 Introduction to the course: objectives, content, expectations, Policy briefs intro | Dr. Nina Keul (CAU) |
| watch video on your own (on Olat) | 2 The Theory of Sustainability: Introducing Core Elements of a Normative Concept | JProf. Dr. Christian Baatz (CAU) |
| Wed 7.5. 16-18h | 3 Sustainable Development Goals: simulation | Dr. Nina Keul (CAU) |
| Fri. 9.5 12-14h | 4 The practice of Ocean Sustainability | Dr. Carlos Guitart (UCA) |
| Wed. 14.5. 16-18h | tbd | |
| Fri. 16.5. 13-16h | 5. a) Marine Mineral Resources: Technology & Profitability b) Marine Mineral Resources: Environmental Impacts of Marine Material Extraction | Dr. Sven Petersen (GEOMAR) Dr. Matthias Haeckel (GEOMAR) |
| Wed. 21.5. 16-18h | tbd | |
| Fri. 23.5. 12-14h | 6 Corporate Social responsibility | Prof. Carlo Limatola (UPN) |
| Wed. 28.5. 16-18h | 7 Law of the Sea: Governance of marine resources | Dr. Liv Christiansen (CAU) |
| Wed. 4.6 14-16h | 8 Introduction to Ocean Ethics | Prof. Dr. Konrad Ott (CAU) |
| Fri. 6.6. 12-14h | 9a) Integrated coastal zone management and marine spatial planning 9b) Sustainability in Aquaculture | Prof. Gorana Jelić Mrčelić (UNIST) Prof. Vedrana Nerlović (UNIST) |
| Wed. 18.6 16-18h | 10 UN Conference Learnings | Dr. Nina Keul (CAU) |
| Fri. 20.6. 12-14h | 11 Basic concepts in Blue Economy | Dr. Vincenzo Alfano (UPN) |
| Wed. 25.6 16-18h | tbd | |
| Wed. 2.7. 16-18h | 12. Policy Brief presentation | Dr. Nina Keul (CAU) |
| Fr. 4.7. 12-14h | 13: Sustainable Exploitation of Marine Living Resources | Prof. Laura Sordo de las Nieves (UALG) |
| 1.8.2025 | Deadline Policy Briefs | |