GEOG3427  Coupled Human and Natural Systems and Sustainability

TIMETABLE ARRANGEMENT: Annual; 1st Semester

CREDITS: 6

TIME: Tuesday 1:30 pm - 3:20 pm

VENUE: CPD-G.02

COURSE TEACHER(S): Dr Zhenci XU

ASSESSMENT:

COURSEWORK 100 %
- Final report
- Mid-term test
- Presentation

OBJECTIVES:

This course aims to help students to gain a basic understanding about complexity in human-environment interactions across distance, scale and sectors, address the complexity issues and frame sustainability based on the integrated framework of coupled human and natural system.

COURSE SYNOPSIS:

This course introduces the emerging science of coupled human and natural system (human-nature interactions within as well as between adjacent and distant human and natural systems, e.g., human-environment systems). Coupled human and natural system science has emerged as a popular topic as it helps generate innovative scientific discoveries and create integrated strategies to global challenges in sustainability, conservation, and management, policy. The course discusses important coupled human and natural system concepts and methods as well as applications to important issues such as sustainable development goals, ecosystem services, energy, environment, food, forest, species invasion, land, migration, trade and water by introducing case studies such as panda and people in Wolong natural reserve. It can also help student generate integrated thinking for understanding the complexity of coupled human and natural systems.

LECTURE TOPICS:

- Coupled human and Natural System, Socio-ecological system
- Distant interactions between multiple coupled human and natural system (+ toolbox)
- Planetary boundaries
- Footprint
- Ecosystem Service Flows
- Conservations (Panda and people)
- Food, Water, Energy, and Nexus
- Trade (supply chain), International environmental governance and policy
- Irrigated  agricultures
- Sustainable Development Goals

RECOMMENDED READING LIST:

- Planetary boundaries: exploring the safe operating space for humanity. Ecology and society, 14(2).

# Additional readings about recent developments to be provided  according to lecture topics.

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<thead>
<tr>
<th>Course Learning Outcomes (CLOs)</th>
<th>Alignment with Programme Learning Outcomes (PLOs)</th>
<th>Course Assessment Methods</th>
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<tbody>
<tr>
<td>After completing this course, students would be able to:</td>
<td>1 2 3 4 5 6</td>
<td>Final report, mid-term test &amp; presentation</td>
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<tr>
<td>1 Explain key concepts and methodology in Coupled Human and Natural Systems</td>
<td>✔ ✔</td>
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<tr>
<td>2 Analyze human-environment issues from coupled human and natural perspectives</td>
<td>✔</td>
<td>Final report, mid-term test &amp; presentation</td>
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<td>3 Apply interdisciplinary communications and collaborations</td>
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<td>Final report, mid-term test &amp; presentation</td>
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<td>4 Enhance critical thinking skills and ability to make arguments supported by evidence</td>
<td>✔ ✔</td>
<td>Final report &amp; mid-term test</td>
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<td>5 Identify research frontiers in studies of Coupled Human and Natural Systems</td>
<td>✔ ✔</td>
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In order to meet the demands and challenges in this dynamic and ever-changing world, the Department has designed a series of well-structured and contemporary courses to cater to the different interests of students. Its courses are designed to align with the University’s educational aims which hope to nurture future generations not only with a critical and intellectual mindset, but also with a passion to contribute to society in general.

After completing the programme, Geography Major students should be able to:

PLO1 critically analyse the geographical aspects of the relationship between people and the natural environment;
PLO2 demonstrate and develop an understanding of how these relationships have changed with space and over time;
PLO3 identify, collect and utilize primary and secondary data to investigate and analyse the issues and problems facing people, places and society;
PLO4 integrate, evaluate and communicate information from a variety of geographical and other sources;
PLO5 participate in promoting social, economic and environmental sustainability at the local, regional and global scales; and
PLO6 effectively apply a range of transferable skills in academic, professional and social settings.

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