What can the past tell us about our future? Much of what we know of the deeper past comes from the remains of microscopic organisms and sediment properties found in depositional settings around the world. In Australia and the Asia-Pacific region there is a rich body of evidence for past changes in climate and biodiversity that is only just beginning to be explored. The course combines in-class learning, and a seven day fieldtrip to the Wet Tropics of northeast Queensland with ‘hands-on’ experience in field collection and analysis of a range of palaeo-environmental indicators including pollen, charcoal, seeds, biogenic silica, and stable isotopes. The will provide students with a deeper understanding and the practical skills to engage in palaeoecology, archaeological science, palaeo-climatology, and natural resource management research.
More Course Details
The course is led by Professor Simon Haberle supplemented by contributions from other ANU and visiting academics including Dr Alistair Seddon, Department of Zoology, Oxford University, UK (collaborating IARU member). The key aim of this course is to provide participants with an understanding of how to reconstruct past environments and the implications this information might have for the conservation and survival of life on Earth.

Key Topics
- Biodiversity across the Asia-Pacific Region
- Reconstructing past environments through the fossil record
- Climate change during the Quaternary Period (last 2.6 million years)
- The Anthropocene and predicting future environmental change
- Environmental dynamics: Extinctions, thresholds and resilience
- Detecting human impacts on the environment through time
- Managing our future though restoration ecology

The course is open to undergraduate and graduate students at ANU and is also available to undergraduate and graduate international students through the IARU Global Summer Program. Due to fieldwork restrictions the maximum number able to participate in this course is 16.

Field Trips
The group will fly Canberra to Cairns and travel by bus to Lake Eacham on the Atherton Tablelands.
Day 1-3: Explore the diverse environments of the Atherton Tablelands through a transect from humid rainforest to dry savannas and visiting iconic palaeoenvironmental and archaeological sites.
Day 4: Conduct fieldwork in a swampland adjacent to rainforest reserve as part of an ongoing restoration ecology project.
Day 5: Visit the herbarium and mangrove forests near Cairns.
Day 6-7: Visit to the reef environments near Cairns with local marine scientists and return to Canberra.

Target Audience
Archaeology, Earth and Marine Sciences, Environmental studies, Sociology, Anthropology, Economics, Politics, Geography, Demography, Sustainability, Resource Management.
Recommended for senior level undergraduates in any of the social sciences. No pre-requisites other than having completed first year undergraduate training in environmental sciences or some other relevant area like social science or arts.

Learning Outcomes & Assessment

Learning Outcomes
On satisfying the requirements of this course, students will have the knowledge and skills to:
1. Describe the natural and anthropogenic drivers of past environmental change at a global as well as regional level. (UG, PG)
2. Describe and explain the techniques that are used to reconstruct past environmental conditions in Australia and abroad. (UG, PG)
3. Analyse and reconstruct past environmental conditions using appropriate field and laboratory techniques. (UG, PG)
4. Interpret palaeo-environmental data from a range of sedimentary contexts. (UG, PG)
5. Reflect on the natural and human influences that explain past environmental conditions and be able to communicate these in ways appropriate to a range of audiences. (UG, PG)
6. Present research data in a journal article format. (PG)

Assessment
UG = Undergraduate, PG = Post-graduate
Multiple Choice Exam – 25% UG, 25% PG
Field Report – 40% UG, 30% PG
Poster Assessment – 30% UG, 20% PG
Group Lab Presentation – 5% UG, 5% PG
Research data analysis – 20% PG
Contact hours: 112 total contact hours + 36 field trip hours (estimate)
Credit equivalent: 6 credit units (the standard credit units for an ANU course)

Accommodation
Students must arrive by 19/06/2014.
Students will be able to check in from 2pm Thursday 19 June 2014.
Check-out by 10am Saturday 12 July 2014. There is no option to stay longer in ANU accommodation.

<table>
<thead>
<tr>
<th>Costs</th>
<th>Tuition fees</th>
<th>AUD 3,246 (waived for IARU incoming students)</th>
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<tbody>
<tr>
<td></td>
<td>ANU students will attract a HECS liability</td>
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<tr>
<td>Accommodation</td>
<td>Accommodation including any deposits</td>
<td>AUD 1000 – waived for IARU partner students</td>
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<tr>
<td>Other deposits</td>
<td>Other deposits</td>
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<tr>
<td>Field Trip</td>
<td>Field Trip</td>
<td>Approx. AUD 1900 (including field trip flights,</td>
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<td>accommodation and meals)</td>
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<td>ANU will subsidize AUD 1000 for ANU students</td>
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<tr>
<td>Textbook Fees</td>
<td>Textbook Fees</td>
<td>AUD50. Certain material will be required before</td>
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<td>the course. Other reading material will be provided</td>
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<tr>
<td>Miscellaneous Fees</td>
<td>Miscellaneous Fees</td>
<td>AUD 40 for poster printing</td>
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<tr>
<td>Living Expenses</td>
<td>Living Expenses</td>
<td>All meals are included with accommodation. An</td>
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<td>estimate of an additional AUD 100 per week as</td>
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<td>spending money. Cost will vary according to each</td>
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<td>student’s personal spending habits.</td>
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FAQs

1. **Can I participate in more than one GSP course at your University, concurrently?**
   Unfortunately, as the two ANU courses are held in different locations they cannot be taken concurrently, or sequentially.

2. **If I am accepted, when will I receive more course details, such as course content, reading lists, timetables, payment schedule & cancellation policies, campus maps and other logistics details?**
   It is expected that course details such as timetables and reading lists for each course will be provided by the course convener at least two weeks prior to the commencement of the course. Other logistical information, including accommodation details, payment schedules etc., will be provided in the ANU GSP information pack that is sent to each student following their accepting their offer of a place on the program. It is expected that this will be in late April.

3. **Will I have access to student facilities such as computer labs, libraries and health services at the hosting university?**
   Yes, you will receive an ANU student identification card that will entitle you to access to ANU student facilities. Students travelling from overseas are strongly advised to purchase travel insurance before their departure.

4. **Will I need a visa to attend this GSP course?**
   In most cases a Visitor or Tourist Visa will allow you to study in Australia for up to three months. As soon as you have accepted your offer, you should contact your nearest Australian visa office for information on your specific visa requirements. Further information may be accessed at http://www.immi.gov.au/. On request the ANU GSP coordinator can provide supporting letters for your visa application.

5. **How can we interact with other participants and GSP alumni before the course?**
   Please visit our GSP Facebook page and join the various events groups to meet informally with other GSP participants as well as alumni. Please contact the IARU GSP Coordinator (iaru.gsp@anu.edu.au) for any questions concerning your participation in the GSP.

You can direct your questions about course credits and scholarships to your home institution. More details about the application process and deadlines will be available in the “How to Apply” page.

Contact: iaru.gsp@anu.edu.au