



Internal and External MQAG Reports

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Project Acronym: **CLIMASP**

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Executive Summary

As pointed in earlier deliverables (D3.5; D4.2; D4.3), internal evaluation was applied throughout the development of the CLIMASP course syllabi and course modules, using a specially designed template that was presented in the earlier modules as well as the administration of the peer-reviewing. Here, we will focus on the external evaluation that played a very critical role in the quality of the CLIMASP Minor courses. The evaluation was undertaken using the pre-designed CLIMASP External Assessment Rubric for Interdisciplinary Learning. (Appendix 1). This assessment rubric consisted of 5 specific areas assessed by using a 4 -scale rating process ranging from Naïve, through to Novice, Apprentice and Master levels. The assessment was based on 5 five key areas: Does the work include selected concepts and methods from two or more disciplinary traditions relevant to the purpose of the work? Is there an integrative device or strategy (e.g., a model, metaphor, or analogy)? Is there a sense of

balance with regard to how disciplinary perspectives are brought together to advance the purpose of the work? Do the conclusions drawn from the work indicate that understanding has been advanced by the integration of disciplinary views? Does the student exhibit awareness of the limitations and benefits of the contributing disciplines?

This rubric was used by the first two evaluation rounds at the development process in order to get first-hand results to be used as a feedback for the course developers. These evaluation concluded that there was some excellent and exciting work, but also there was evidence of work that has been put together quickly. This may be due to time constraints or to a lack of understanding of what is required. Some of the work presented is of a very high standard and should be disseminated on a wider level either through conference of paper presentations and/ or publication. The work in general has the potential to impact change at policy level and should be publicised nationally in the media and presented to the policy makers at local and national level. Among the key recommendations were that greater emphasis should be placed on engaging more students in course design, assessment and pre and post evaluation of the impact of CLIMASP on their academic lives. This was a critical comment which was taken into consideration during the piloting stage with the involvement of 2000 students in the course assessment. A longitudinal study of the graduates over a 5-year period in their professional lives could be very beneficial. Peer support and evaluation of courses both within and across the partner institutions is recommended.

By the end of the project, we have decided to employ an additional external evaluator from the University of Sussex, UK with the assigned task to review the whole structure and function of the CLIMASP Minor as it was being implemented across the 10 partner universities. The purpose it was not just to see if there was improvement since the previous evaluations, but also to get to provide the CLIMASP course instructors with additional feedback. Indeed, the results of this assessment was very fruitful and constructive. It is worth pointing out that the evaluator from the University of Sussex, Dr. Antonarakis cooperated with the previous external evaluator Dr. Biasutti in cases needed to clarify things related to the evaluation process. The great majority of the CLIMASP courses are close to be exemplary. This, however, does not mean that there is no space for improvement. The constructive critical comments provided show it.

In the following we will present, first the last evaluation results and at the end the previous evaluation reports.

External Evaluation Report
Dr. Alex Antonarakis, University of Sussex
20/09/2017

HASHEMITE UNIVERSITY JORDAN

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
1. Program Objectives & Outcomes					Yes. Excellent coverage of all key CLIMASP objectives and deliverables.
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	<p>Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners. As the other Jordanian Universities, Hashemite participated in three national and two regional meetings and workshops. The first national workshop was during the design phase and led to the development of a list of competencies and guidelines for strengthening stakeholders' inputs in the CLIMASP curriculum development, and to design 24 syllabi. The second national workshop was in the development phase where syllabi created could be peer reviewed and discussed. The third national workshop was to discuss students' performance results and course structure from the pilot phase. The regional workshops helped discuss the implementation phase of the programme. Hashemite also successfully developed an ICT lab (Table on p. 22), together with computers, projectors, and GIS software.</p> <p>Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMATE change and Sustainability Policy (CLIMASP) in each partner country university. Information of faculties and staff involved is excellent, with the design team defined in Table 1 (p. 11) involving the faculties of Science, Educational Sciences, Information Technology, Economics and Administrative Sciences, and</p>				

Natural Resources and Environment. Those faculties and academics involved in the pilot study are also well defined in Table 2 (p.12). The description of the stakeholder involvement is also excellent (see section on Design phase). Hashemite describes the stakeholders involved included Government officials from the Ministries of Health, Environment, Water and Irrigation, Energy and Natural Resources, Climate Change Directorate, Jordan Valley Authority, Environmental Police Department, Faculty members from different universities, and representatives of several interest groups and organizations, civic societies and NGOs including the Royal Scientific Society and The National Center for Agricultural Research and Extension. The stakeholders were invited to be part of the ‘design’ process in investigating the capabilities and conflicts of interests related to climate change and strengthening their contribution to the curriculum’ (p.10). Faculty staff from each department was assigned to develop the courses’ syllabi and modules, infusing the stakeholders’ inputs into the courses, and developing the pedagogical and structural principles that will guide the development of the courses.

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

The Euro-Arab Centre is the driver force for the institutionalization of the CLIMASP program at the Hashemite University and in promoting interdisciplinary teaching, learning and curricula. The Centre is also responsible for issuing the Euro-Arab Pass Diploma for the CLIMASP Diploma Certificate. The centre will continue to play a major role in disseminating the program at the Hashemite University, and in achieving the long term sustainability of the program. CLIMASP is integrated into the majors of a number of departments including Curriculum and Instruction, Water Management and Environment, Land Management and Environment, Biology and Biotechnology, Economics, Computer Science and Application. These cross the disciplines of education, applied and technical sciences, economics/management and social sciences.

Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.

The processes of design (section 5a), development (section 5b), pilot study (section 5c), implementation (section 5d), monitoring and evaluation (section 5e), and dissemination (section 7) are well defined in the case study report, as well as problems faced and solutions procured (sections 9). The pilot and implementation phase contain very detailed coverage of student participation, with detailed student results of pre-and post-test student perceptions of CLIMASP pilot courses (Table 1&2 p. 15-16). The dissemination activities are also detailed in pages 23-25, with activities ranging from printed material for students, to creating online material, and presenting at numerous conferences.

2. Course Content*				Course content is in line with CLIMASP ethos. There is some confusion	
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				as to why not all courses are offered across all majors in the six disciplines.	
Leading questions	<ol style="list-style-type: none"> 1) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge? 2) Do the CLIMASP minor courses make connections across the participating academic disciplines? 3) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner? 				
Assessment and suggestions	<p>1) The courses offered cover subjects within the Faculties of Science, Educational Sciences, Information Technology, Economics and Administrative Sciences, and Natural Resources and Environment. The courses cover relevant topics including climate change and contemporary issues, economics of natural resources, energy, environmental sociology, sustainable development, environmental impact and legislation, renewable energy, business ethics, and computer technology. All these courses match the CLIMASP program, and effectively cross subject disciplines, involving all major faculties.</p> <p>2. The core, elective and capstone courses offered constitute diverse interdisciplinary learning. In fact there seem to be 31 courses overall. Some courses are not offered for all 6 major degrees, and this may cause some trouble for students. <i>If there are 20 electives, then it would be beneficial for each student from all degrees to have access to them.</i> This would allow full connectivity between the departments offering CLIMASP. The case study states that 24 interdisciplinary courses were created, which is phenomenal. The evaluator recognised the massive work that has gone into this.</p> <p>3) All participating faculties teach at the level of the CLIMASP minor. They have been involved in the delivery and development phase, and contribute to meaningful and holistic knowledge. Yet, some CLIMASP pathways do not involve all 6 departments, but only 4 (e.g. see Water Management and Environment p. 29). Here, they miss Economics, Arts, and Computer Technology departmental courses. <i>Therefore, not all departments teach for all the CLIMASP minors at Hashemite.</i> It is understood that this may be a timetabling issue.</p>				
3. Core Courses*					Yes, core courses are coherent and necessary. Perhaps switch 'Energy and its Sources' with the

					elective 'Climate Change and Global Warming'. This is at the discretion of the organisers.
Leading questions	Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment suggestions	The three core courses are offered from the Faculties of Science and Economics, and cover the topics 'Environmental Awareness', 'Economics and Administration', and 'Energy and its Sources'. These three are well placed within the 3 CLIMASP concentration areas, appropriately covering 'Society', 'Science' and 'Economics'. The elective course 'Climate Change and Global Warming' also is very relevant and important enough to constitute a core module. This is perhaps equally or more important than 'Energy and its Sources'. Perhaps Hashemite can just hold a discussion considering which of the two modules is more appropriate as a core, and whether it is feasible given timetabling and faculty time.				
4. Elective Courses*				Yes, electives are meaningful. As above, there is some confusion as to why not all courses are offered across all majors in the six disciplines.	
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment and suggestions	There are a large number of elective courses (around 20), with most of them being newly created course for CLIMASP (p.26). The majority of them are specific enough and are linked to the CLIMASP objectives and ethos. These cover the sciences (climate change, environmental impact, biotechnology, developmental biology, environmental variability), economics and resource management (economics of natural resources, renewable energy, policy and law, economic feasibility, Jordan economy), sociology (business ethics, environmental sociology, contemporary issues), and education. These topics are therefore scientific, technological, policy orientated, sociological and economical. <i>As stated above, it is a little confusing why all the elective courses are not offered to all students from all faculties undertaking the CLIMASP minor.</i>				

5. Capstone Course*				Yes, good range of practical skills. More explicit connection to stakeholders in the case study.	
Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?				
Assessment and suggestions	There are a number of capstone courses (8 in total), depending on which major discipline is linked to CLIMASP. The 'Environmental Volunteering' course is one that is offered by all six departments, while others include 'Practicum' (Education), 'Special Topics' (Natural Resources/Biology), 'Research Project' (Natural Resources/Economics), and 'Practical Project' (IT). Although there is no further information on these in the Case Study, it seems logical that some of these should have direct links to stakeholders though volunteering and internships. <i>Please make this link with stakeholders more explicit in the Case Study.</i> Otherwise, the practical skills for each department make sense.				
6. Concentration Areas			Good linkages to the concentration areas. Many electives need to be re-arranged to fit the concentration areas.		
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?				
Assessment and suggestions	It is not clear from the case study document which courses are linked to which CLIMASP concentration area. These were found on the Hashemite website (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Hashemite-University-CLIMASP-MINOR.pdf), and will comment on these. The courses are a little mixed up in each concentration area. I would suggest the following courses under each concentration area: The 'Environment and Society' can contain the three Education courses of 'Teaching Methods of Biology Concepts', 'Teaching Methods of Chemistry and Geology Concepts', 'Education for Sustainable Development', but also include 'Environmental Sociology', 'Contemporary International Issues', and 'Biotechnology and Society'. The latter three are strongly associated with Societal issues and not with economics or science. The 'Economics and Public Policy' concentration area can contain all listed courses except 'Environmental Sociology'				

	<p>and ‘Contemporary International Issues’. The other courses are fine, i.e. ‘Economics Feasibility Studies’, ‘The Economics of Natural Resources and Environment’, ‘Jordan Economy’, ‘Business Ethics’, and ‘Environmental Legislation and Policy’. All these are strongly relevant to the economics and policy theme.</p> <p>The ‘Science and Technology’ concentration area can contain very relevant courses like ‘Developmental Biology’, ‘Renewable Energy Resources’, ‘Multimedia Programming’, ‘Computer Networks’, and ‘Computer Ethics’, but also need to contain scientific topics like ‘Environmental Impact Assessment’, and ‘Environmental Spatial and Temporal Variability’. If the ‘Climate Change and Global Warming’ is not made into a core module (see comment above in question 3), then place this here. If ‘Energy and its Sources’ is switched into an elective, then place this here.</p>				
7. Program Flexibility			Each department offers 8 electives out of 20. There could be more program flexibility if more electives were offered to each department.		
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own minor?				
Assessment and suggestions	<p>There are a great number of courses created for the CLIMASP minors, and this will greatly benefit the students allowing challenging and interdisciplinary learning. Judging from the tables on pages 28-33, not all electives will be available to all students. For example, crucial modules like ‘Climate Change and Global Warming’, ‘Contemporary International Issues’, ‘Renewable Energy Resources’, and ‘Biotechnology and Society’ amongst others will not be offered to all 6 departments allowing CLIMASP accreditation. Each department does offer eight electives each, of which students take five. Flexibility would be increased if there were more electives available or each student.</p>				
8. Credit Allocation				Yes for core and electives. Capstones require more than one course to fulfil the ECTS required. How many electives from each concentration area?	

Leading questions	Is the workload appropriate for each course (credit allocation)?				
Assessment and suggestions	<p>The credits are given in the appendix tables on pages 28-33. The credit mix is 15/10/25 from the core, capstone and elective courses respectively. This is within the 45-60 ECTS required for CLIMASP and the Euro-Arab Diploma. <i>Perhaps make clearer how many electives need to be taken from each concentration area.</i> Also The credit allocation for capstone courses is lower requiring students to take two or three courses to fulfil the 10 ECTS. <i>This may be too much workload, but it depends on the type of assessment and word number of their essays.</i></p> <p>In terms of workload, there are examples of courses provided by Michele Biasutti, i.e. Biotechnology and Society / Biological Concepts and Methods of Teaching Biology. The material that is taught and student expectation in each of these two courses is good for the credits.</p>				
9. Skills and Assessment*					Yes, according to examples provided.
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				
Assessment and suggestions	<p>There are examples of courses provided by Michele Biasutti. Assessment comes in the form of three exams (70-80%) and assignments/presentations (20-30%). The assessment is spread out, allowing students to develop their knowledge given feedback from each exam. Assignments and presentations are also appropriate, and allow students to be assessed in different manners rather than just exams.</p>				
10. Student Experience*				Courses were created with student perception and satisfaction in mind. It is not known if students can influence course content after this.	
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?				
Assessment and suggestions	<p>The courses offered have been through a rigorous design, development, pilot, and implementation. The courses' syllabi and modules were modified based on the comments and suggestions of the peer-reviewers and both internal and external</p>				

	<p>evaluators. The program was also approved and validated by the planning committee at each Department and Faculty levels, after a thorough inspection and analysis of the courses' descriptions, syllabi and modules. This is all very positive, and shows that change and feedback has been allowed and taken on board. Yet, it is unknown if students will be able to offer feedback to influence course content from year to year. <i>Please make this explicit in the Case Study.</i></p>
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*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

AMERICAN UNIVERSITY OF MADABA

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
11. Program Objectives & Outcomes				YES. More reporting on stakeholder agents, and more information on the implementation phase.	
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	<p>Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners. Capacity building activities involving AUMadaba and the other national and international partners are defined in Section 4A-B of the Case study through internal/external meetings, and workshops. This has been to help in the designing and developmental phase of the project, helping to define the faculty and departments involved in CLIMASP, choose the relevant courses, review the courses, and amend courses following review. The internal Centre for Training and Consultation at Madaba acts as a steering body for the program, and the ICT lab and CLIMASP will play an important role in future capacity building and training of academic staff.</p> <p>Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university.</p>				

There is evidence that multiple departments and stakeholders are involved in the development of CLIMASP minors. Four departments with four faculty members are centrally involved in the CLIMASP minors programme, including Basic Sciences and Humanities, Risk Management, Biology and Biotechnology, and Nutrition and Dietetics. The administrative departments such as IT, registration, finance in addition to the president's office did collaborate and helped in finding the appropriate methodology to adopt a new integrated minor program within the system to AUM students from different faculties without additional costs, and the establishment of a unit of interdisciplinary studies (page 10). There is also clear evidence that the CLIMASP programme will be certified by the Euro-Arab pass. Stakeholders have been involved since the inception of the programme, from the Design Phase (Section 4A), to influencing the choice of the courses. The stakeholders involved included ministries, NGOs and professionals working in the private sector. *Specific names of individual stakeholders are not offered.*

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

AUM's vision as a university is to promote interdisciplinary and multi- stakeholder driven curricula responsive to societal needs and to inclusively include undergraduate interdisciplinary. This leads to their desire through CLIMASP to integrate the minors 'program on climate change and sustainability policy, enabling students to acquire a Europass supplement diploma' (page 2). It is clearly stated which departments have been involved, and which departments may be involved in the future (section 6). The courses defined in tabular format on page 11-13 show which faculties are involved in teaching, and which courses students can take from each discipline.

Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.

The processes of design (section 4A), development and monitoring (section 4.B), pilot study and evaluation (section 4C), dissemination (section 7), and review (p. 13/17) are well defined in the case study report, as well as problems faced and solutions procured (sections 5-6). The pilot study defines that 'There were some increased changes experienced by students at the end of the piloting courses' (page 15) yet 'The student evaluation during the pilot phase indicated some positive results although statistical analysis was not possible or appropriate.' (page 19). *A little more on the implementation phase would be desirable even if the statistics were not meaningful.* The dissemination approach is/will be based a) through stakeholders involved in 2014; b) through the AUM website; c) social media; d) flyers for students and talks at orientation days; e) posters & brochures.

ONLINE MATERIAL IS EXCELLENT!

12. Course Content*					Yes, the overall course structure and content is in line with the CLIMASP
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					objectives. It might be expected to have a course called 'Climate Change' or 'Sustainability'.
Leading questions	<p>4) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>5) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>6) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>				
Assessment and suggestions	<p>1) Yes, the courses cover subjects within the departments of Basic Sciences and Humanities, Biology, Nutrition, and Risk Management. The courses offered by each is defined in pages 11-13. Each department offers a number of courses from electives to core and capstone, numbering between 5-7 in total, with Biology offering the most. The CLIMASP courses offered make sense depending on the specialities of each department, e.g. Basic Sciences delivers the general core courses, and less of electives. The courses offered deliver meaningful knowledge both between departments (from sociology to risk, economics, and ecology), but also within departments (e.g. from social science to ethics and environmental/energy offered by the department of Basic Sciences and Humanities). The only topic that is explicitly missing, and is important for a hydrologically insecure country like Jordan is that of Water, although this should be implicitly covered by the Nutrition and Risk Management Departments. <i>I would also expect a core or elective module concerning 'Climate Change' and/or 'Sustainability'</i>, although it is recognised that these issues are embedded in many courses through involvement of the stakeholders (section 4A 'choosing the courses').</p> <p>2. The core, elective and capstone courses offered are unique enough to constitute diverse interdisciplinary learning without much overlap. Furthermore, they cover essential modules such as food security, natural disasters and risk, ecology and bio-ethics, and management. There are also important connections between academic disciplines such as the topics agriculture/management/risk in the departments of Risk Management and Nutrition, and plant sciences, ecology, and agriculture between Nutrition and Biology.</p> <p>3) Yes, participating departments are heavily and equally involved in delivering knowledge for the CLIMASP minor courses, delivering a similar number of courses each. The core departments have also been involved at the design and development phase (section 4A-B / page 10-11). The departments that were not included in the development and delivery phase were also mentioned (section 5).</p>				

13. Core Courses*				Yes, core courses are coherent and necessary. Why not explicitly link these to CLIMASP by calling them 'Climate Science and Society' and 'Social Ethics and Policy'? See comment below for 'Basic Science and Humanities' faculty incentive	
Leading questions	Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment suggestions	<p>The 3 core courses offered are not from all participating faculties, but only from Basic Sciences and Humanities. Yet, these courses are very appropriate concerning the CLIMASP programme, covering Climate Change-Sustainability-Policy. On face value, these modules cover Science, Society, Ethics, and Environment. Yet, the descriptions of each module (with the help if Michele Biasutti and AUM website) result in a very good and close alignment with CLIMASP. 'Science and Society' is in essence a Climate Change course... 'Social Ethics' an ethics and Policy course... and 'Energy and the Environment' involves much material about Sustainability. It is realized that these are existing courses in the Department, <i>but why not explicitly call them 'Climate Science and Society', 'Social Ethics and Policy'?</i> This would create a direct link to what you are selling (CLIMASP), and the core courses.</p> <p>These three core courses are therefore coherent and necessary for students from all 3 participating disciplines, providing challenging but central knowledge on Climate Change and Sustainability for both science and humanities students.</p> <p><u><i>As CLIMASP is not offered for students of Basic Science and Humanities, is there a danger that faculty will lose incentive to continue teaching the core modules?</i></u></p>				
14. Elective Courses*					Yes, elective courses are coherent and meaningful.
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment and suggestions	<p>The elective courses cover a number of disciplines, and students from any of the 3 degrees can find interesting courses to take. The options from the Department of Nutrition&Dietetics are relevant to the CLIMASP ideology, covering important agricultural and sustainability issues (e.g. food security/hygiene/management). These are hot topics globally, but also regionally. The Department of Biological Sciences offers a range of topics from bioethics to microbiology,</p>				

	<p>ecology, and plant sciences. These offer a science background to CLIMASP with good connections to courses offered by Nutrition&Dietetics. The Department of Risk Management offers courses on Disasters, Management, and Risk, connecting also to Economics. These courses have connections to drought, plant sciences, and food security, which are common themes across disciplines. The Basic Sciences and Humanities department offers one course on Civic Education, promoting democracy in Jordan through raising socio-political awareness. This module is unlike the others, but has a place in under the ‘Environmental and Society’ concentration area of CLIMASP. Therefore, all elective courses are coherent, multi and interdisciplinary, and are compatible with the ethos of CLIMASP.</p>				
15. Capstone Course*					Yes, good practical experience gained, and the opportunity to learn at a public or private bodies outside of the University.
Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?				
Assessment and suggestions	Yes, the capstone courses provide practical experience across all 3 disciplines. These are similar across the 3 disciplines, but the ‘Internship in Food Science’ and ‘Research project’ allow students to conduct their learning outside of academia (obtaining information from aum.edu.jo/CLIMASP). This seems to be a good link to stakeholders. The graduation project offered through Business and Finance does not state whether internships/work placements are required on the website or in the case study document. For all it is unclear, though, whether the student projects are linked to stakeholder institutions. Explicitly defining this could greatly improve employment prospects, but also recruitment to the CLIMASP minors.				
16. Concentration Areas				Good linkages to the concentration areas. Change two of the courses ‘Bioethics’ and ‘Food Systems Management’ to Env& Society and Econ&Policy.	
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?				

Assessment and suggestions	<p>The courses and concentration areas are laid out on pages 11-13. There are two courses that seem out of place. The first is Bio-Ethics offered by Basic Science & Humanities, relating ethics of human choices on medical and biological issues. This belongs more in the 'Environment and Society' theme rather than the 'Science and Technology' theme. On the website (aum.edu.jo/CLIMASP) this has been switched. The second is the 'Food Systems Management' (Nutrition) tackling food purchasing, quality assurance, and management of feeding establishment, financial planning of staff food services, and application of food quality systems to institutions. This is more of an 'Economics & Policy' course than a 'Science and Technology' course, even if there is a bit of overlap. The remaining modules are clearly linked to their respective concentration areas.</p>			
17. Program Flexibility				Yes, students will be able to build their own minor.
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own minor?			
Assessment and suggestions	<p>The number and breadth of electives allows students to build their own minor according to their passions. Furthermore, a student will cover fundamental core courses across disciplines from science to economics, and sociology. Also the choice of electives is free for all participating students, as it is stated that students need to take at least one course from each concentration area.</p>			
18. Credit Allocation				Yes, from the examples provided.
Leading questions	Is the workload appropriate for each course (credit allocation)?			
Assessment and suggestions	<p>The credits for each course is given in page 11-13, stating that the capstone courses are 8.33 ECTS, the elective and core courses are 5 ECTS. This results in 15/8.33/30 from the core, capstone and elective courses respectively. This is within the 45-60 ECTS required for CLIMASP and the Euro-Arab Diploma. The choice of courses across concentration areas and core/electives is clear at AUM. Note: Why is course 201415,201416: Ecology, Ecology lab worth 4 CH and not 3CH?</p> <p>In terms of workload, there are examples of courses provided by Michele Biasutti, i.e. Applied Ecology / Science and Society. The amount of work and activities for these are appropriate for a single course.</p>			

19. Skills and Assessment*					Yes, from the examples provided.
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				
Assessment and suggestions	There are examples of courses provided by Michele Biasutti, i.e. Applied Ecology / Science and Society. Assessment comes in the form of midterm exams (30%), homework and course participation (10%), project (20%), final exam (50%). These assessment types are appropriate, so that students are not stressed by one single assessment, can challenge and develop a student's interdisciplinary learning, and ensures student participation and learning throughout the course.				
20. Student Experience*				AUM recognises the importance of student learning and experience. It is not known if students can influence/alter course content from year to year.	
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?				
Assessment and suggestions	<p>Yes, the students can take courses that will enhance their experience of the Climate Change and Sustainable subjects. There has been and continues to be feedback offered from stakeholders (p. 11), from partner CLIMASP universities (p. 13). AUM recognises the difficulties in engaging students in problem-based and student-based learning although this has benefits to the learning process and student experience. They consciously desire to establish activities 'which are more appealing and make students more engaged and interested' (solution G), including planning 'joint activities, practical and voluntary work, combined with student projects in each course' related to sustainability climate change and ecosystem services.</p> <p>The ICT lab also benefits the student experience, and there have been encouraging comments concerning this (p.18). AUM plans to use their resources to evaluate and revise curricula, and evaluate students according to international and US standards (section 7).</p>				

It is not known if there is flexibility to alter course content every year based on student feedback.

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

JERASH UNIVERSITY JORDAN

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
21. Program Objectives & Outcomes					Yes. Excellent coverage of all key CLIMASP objectives and deliverables.
Leading questions	To what extend there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	<p>Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners. As the other Jordanian Universities, Jerash participated in three national and two regional meetings and workshops (section 4.4). These training workshops were for the design and development phase of CLIMASP, i.e. selecting the institutional design team and staff involved, mapping and analysing barriers, involving stakeholders, and develop syllabi for the CLIMASP modules. These meetings also achieved quality control through internal monitoring of staff and syllabi, and subsequently external reviews. Jerash has also successfully developed an ICT lab (Annex 1 Photo1), together with greater than 20 computers and an ICT Lab technician. Table 4 provides excellent details of the ICT lab.</p> <p>Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an</p>				

	<p>undergraduate interdisciplinary programme in CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university.</p> <p>Information of faculties and staff involved is excellent. There is a description of the 5 individual staff involved at the design phase (section 4.4.1). There is then a description of the involvement at the development phase (section 4.4.2) with 1311 courses investigated across 11 faculties and 6 departments. The pilot phase (section 4.4.3) also defines the faculty and departments involved. Furthermore, there is an excellent description of the stakeholders' involvement, and the specific stakeholders who were involved (p. 11 section 4.4.1). These include government institutions, agricultural associations, and civic societies (11 non-academic bodies are mentioned).</p> <p>Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.</p> <p>Jerash has adopted CLIMASP following development, validation and accreditation of CLIMASP syllabi and modules, establishing the Euro-Arab Centre for Interdisciplinary Studies. This means that the CLIMASP Program is fully integrated into existing academic disciplines in their institution. Development of syllabi and modules in the climate change and sustainability theme was accomplished with the help of the inter-university team in various faculties. These include the faculties of Agriculture, Economics and Administrative Services, Arts and Education (Table 8 section 4.4.4). The departments within each faculty cover subjects including education, technical and applied sciences, economics, and social sciences.</p> <p>Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.</p> <p>The processes of design (section 4.4.1), development (section 4.4.2), pilot study (section 4.4.3), implementation (section 4.4.4), monitoring and evaluation (section 4.4.5), and dissemination (section 7) are well defined in the case study report, as well as problems faced and solutions procured (sections 6). The pilot study and implementation phase contains great coverage of student participation and results from student surveys from the pilot phase. The dissemination tools are outlined in detail in section 7 on page 23. These range from project websites to technical papers, press releases, brochures, fact sheets, presentations, workshops, emails and social networking. <i>The website could offer more information, although it is recognised it is still under development.</i></p> <p>Overall, the case study coverall is excellent, but there is some repetition (e.g. see pages 9-11). Could be more succinct, and can get into the CLIMASP process quicker.</p>				
22. Course Content*			Content in line with CLIMASP. Concerns 1) Courses on the website are different		

			that case study; 2) some courses are too general to be offered in a minor. 3) Confusion as to which departments are involved.		
Leading questions	<p>7) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>8) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>9) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>				
Assessment and suggestions	<p>1) The courses offered cover subjects within the Faculties of Agriculture, Economics, Arts, and Education. Within these, there are 7 main departments where students can enrol onto CLIMASP. These are Food Science & Nutrition, Plant Production & Protection, Accounting, English Literature, Translation, Classroom Teacher, and Kindergartens. In addition, courses are also offered by Faculties of Law, Science, and IT, and within these the departments of Civic Law and Computer Sciences. This results in variable courses offered for the CLIMASP minor, with topics ranging from Human rights, to Legal Issues, and General Biology. Courses also directly match the CLIMASP program with core courses such as ‘Climate Change & Sustainable Policy’. All this gives student the choice and flexibility to build their own degree, regardless of the major subject they are studying.</p> <p><i>It should be noted that the courses described in the case study document in Tables 8-9 are not exactly the same as the website (http://www.jpu.edu.jo/). I assume the website is more up-to-date. Please amend one of the other.</i></p> <p>2. The core, elective and capstone courses offered are unique enough to constitute diverse interdisciplinary learning without much overlap between individual courses. They cover essential subjects in an interdisciplinary minor such as food security, management knowledge, environmental law, fiscal policies, economic plants, biodiversity, and animal environments. Furthermore, there are a number of non-specialist courses such as Communication Skills, Creativity and Thinking, Macro-microeconomics, and General Chemistry and Physics. Granted, this gives students in e.g. a Sciences major to take subjects in Communication Skills or a humanities student the ability to take basic science subjects. <i>Yet, these are not central to CLIMASP, and so students may end up wasting credits in general courses. I recommend putting</i></p>				

	<p><i>a clause on the minor degree that they can only take 1 general topic.</i></p> <p><i>3) Yes, the four participating Faculties (see sections 4.4.2 and 4.4.4). It is a little confusing to see there are multiple faculties in the pilot phase (e.g. Law), but they do not offer CLIMASP through their undergraduate degrees (section 4.4.4 Table 8). It is assumed that there are faculties that did not want to see CLIMASP to completion.</i></p>			
23. Core Courses*				<p>Yes, core courses are coherent and necessary. There is still confusion as to why the Faculty of Law offers a core module but is not involved in implementation.</p>
Leading questions	Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?			
Assessment suggestions	<p><i>The 3 core courses offered are not from all participating faculties (i.e. those in Table 8). Mainly, Law is not a participating faculty, but does offer one of the core courses – Human Rights. This causes confusion, as was indicated in Rubric Question 2 above. Apart from this, the choice of modules is excellent. They cover the major disciplines outlined by the CLIMASP objectives. These are ‘Climate change and Sustainable Policy’ offered by Dept. of Agriculture, ‘Environmental Science’ offered by Dept. of Plant Production, and ‘Human Rights’ offered by Dept. of Public Law. These courses are highly appropriate and provide challenging but central knowledge on Climate Change and Sustainability for both science and humanities students.</i></p>			
24. Elective Courses*				<p>Most, elective courses are coherent and meaningful. I would suggest limiting the non-specialist electives, or allow students to only take 1.</p>
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?			
Assessment and	<p><i>The elective courses cover a number of disciplines, and students from any of the 4 faculties can find interesting courses</i></p>			

suggestions	<p>to take. All specialist modules are necessary and relevant to the CLIMASP ideology, covering sciences (food safety, nutrition, biodiversity, plant production), economics (management, economic development, economic plants), law and policy (environmental law, contemporary law). These topics are therefore scientific, technological, policy orientated, and economical.</p> <p>As stated above, there are a number of non-specialist courses such as Communication Skills, Creativity and Thinking, Macro-microeconomics, and General Chemistry and Physics. It is understood that some of these are offered by Education and Arts Faculties linking major degrees with CLIMASP minors. Yet, many of these are not central to CLIMASP, and so students may end up wasting credits in general courses. I recommend putting a clause on the minor degree that they can only take 1 general topic. This may be what is shown in Table 3 p. 14, but am not sure.</p>			
25. Capstone Course*				Yes, good range of practical skills. More explicit connection to stakeholders in the case study.
Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?			
Assessment and suggestions	<p>There are numerous capstone courses on the website (http://www.jpu.edu.jo/) but not many in the case study document (Table 3 p. 14). Online, capstone courses include practical applications to Food production & Agriculture, Research methods in English and Translation, Research methods in Accounting, and Practical Education. The case study document nor the website make it clear whether the student projects are linked to stakeholder institutions. This may already be the case, especially with the great list of stakeholders in the section 4.4.1.</p> <p>I have received the Capstone course from Business Administration Department, and it makes clear links to stakeholders. Therefore I have no reason to believe the others are different.</p>			
26. Concentration Areas			Good linkages to the concentration areas. Many courses are general and do not directly link with CLIMASP themes.	
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?			

Assessment and suggestions	<p>The courses and concentration areas are laid out on Table 2 page 13. The ‘Science and Technology’ concentration area covers relevant topics like Animal environment, Biodiversity, and Plant Production. General Biology/Chemistry/Physics and Computer Skills do generally fall within the correct concentration area, but as stated in previous leading questions, they are not focus enough to link to the CLIMASP program. The ‘Translation’ elective offered by Dept. of English does not belong in this concentration area.</p> <p>The ‘Economics and Public Policy’ concentration area covers relevant topics like Contemporary legal Issues, Environmental law, Economic development, Fiscal and monetary policies, and Economic plants. Introduction to Economics, Macro and Microeconomics do generally fall within the correct concentration area, but as stated before, are not focus enough to link to the CLIMASP program.</p> <p>The ‘Environment and Society’ concentration area covers relevant topics like Human Nutrition and Food Safety. General topics like ‘Knowledge management’ and ‘Thinking and Creativity’ do generally fall in the ‘Society’ area but is not directly linked to CLIMASP. ‘Communication skills in English’ offered by Dept. of English does not belong in this concentration area.</p>				
27. Program Flexibility			Yes. Perhaps there is too much choice as many electives are general knowledge or skills subjects.		
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own minor?				
Assessment and suggestions	<p>The number and breadth of electives allows students to build their own minor according to their passions. Perhaps there is too much flexibility, especially concerning the elective courses where 10 out of the 21 courses offered at general knowledge or general skills courses not directly linked to the CLIMASP themes. It may be fine to still include these, but limiting the number of general electives to 1 would greatly improve relevant knowledge obtained by a student in climate change, sustainability and policy.</p>				
28. Credit Allocation				Yes, from the examples provided. How many electives need to be taken from each concentration area?	
Leading questions	Is the workload appropriate for each course (credit allocation)?				

Assessment and suggestions	<p>The credits for each course is given in Table 3 page 14. The credit allocation is exactly the same as the other Jordanian Universities, with capstones at 10 credits, and core and elective at 5 credits each. This results in 15/10/25 from the core, capstone and elective courses respectively. This is within the 45-60 ECTS required for CLIMASP and the Euro-Arab Diploma. <i>Perhaps make clearer how many electives need to be taken from each concentration area. Currently it seems that a student takes 2 electives and then another 3 from the 'student study plan'. It is not clear what this is (small explanation p. 24).</i></p> <p>In terms of workload, there are examples of courses provided by Michele Biasutti, i.e. Graduation Project (dept of Business) / Environmental Science and Agriculture. The structure of these courses, and the descriptions of workload/assessment balance/ interdisciplinary/ inclusion of Guest lecturers / and interaction with stakeholders is excellent. In other words, the students will be well guided but also challenged for each module.</p>				
29. Skills and Assessment*				Yes for core courses. For capstone courses shouldn't the assessment be based on a thesis/essay rather than exams?	
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				
Assessment and suggestions	<p>There are examples of courses provided by Michele Biasutti. Assessment comes in the form of homework (10%), and three exams (20/20/50%) for the core module. The capstone module provides the same assessment. Usually Graduation Project are not assessed by exams, but by essays or science theses consisting of e.g. 10000 words. It would be good to clarify this.</p>				
30. Student Experience*				Courses were created with student perception and satisfaction in mind. It is not known if students can influence course content after this.	
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own				

	minor degree?
Assessment and suggestions	Yes, the students can take courses that will enhance their experience of the interdisciplinary Climate Change and Sustainable subjects. The process from the design to the implementation phase has been filled with evaluations and changes of courses and course content, e.g. from stakeholders, from the core CLIMASP team at Jerash, from the university hierarchy, and from the external evaluators and other CLIMASP partners. The pilot phase has allowed changes to be made based on student satisfaction and perceptions. Also, some of the core modules are new, showing that there is some flexibility in developing and improving course content. The capstone courses in themselves offer ‘opportunities for students to study, develop, and implement solutions to climate change through internships and other applied coursework’ (p. 25). All of this is very positive, and indicates students will continue to be able to influence course content from year to year... <i>although this is not explicitly stated in the case study.</i>

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

UNIVERSITY OF JORDAN

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
31. Program Objectives & Outcomes					YES. More reporting on stakeholder agents.
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	<p>Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners.</p> <p>There is a very good description of training and capacity building in section 4. Capacity building activities have included three national meetings and two regional training workshops at three crucial stages of the project (design/ development/ implementation). These have discussed and solved issues on defining and delivering educational knowledge and experience, curriculum development, problem based learning approaches, peer reviewing, pilot stage outcomes,</p>				

purchasing infrastructure, etc. There has been clear targeting to technological requirements in teaching, and there is qualitative illustration of these in Annex (4).

Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university.

There is evidence that multiple departments and stakeholders are involved in the development of CLIMASP minors. This is not only through the capacity building exercises, but also from the number of faculties and faculty members responsible for the various courses, and through the inclusion of University hierarchy in the process. This includes the University Vice-President, Dean of Scientific Research, University Registrar, Department of Curriculum & Instruction, Department of Business, and Departments of Chemical and Mechanical Engineering, and Geology. There is also clear evidence that the CLIMASP programme will be certified by the Euro-Arab pass. Non-Academic Stakeholders have also been involved since the inception of the programme (Section 4.1), but specific names of companies/agents *have not been reported in the case study document*. There is mention of the desired involvement of the Ministry of Environment in the conclusion.

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

Internal University of Jordan Goals and Objectives concerning Sustainable Development are main very clear on page 3. These cover creating a collegial environment for staff and students where students excel academically, are able to use adequate resources within the university, and can guide students effectively once they graduate. It is also appropriately stated that “The university academic programs amalgamate traditional academic lecturing with more modern pedagogy which is based on discussion, research, analytical thinking, based problem learning and social media means.” (section 5.0 p.16). It is clearly stated which departments have been involved, and which departments have not (section 4.2.2 & 4.3). It is made clear which departments will teach which modules on pages 19-20, and which BSc and BA degrees will be linked to the CLIMASP minors (section 4.2.2).

Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.

The processes of implementation, monitoring, evaluation, dissemination, and review are well defined, as well as problems faced and solutions found (Section 4.3). Implementation and Dissemination are defined in section 4.4, with pilot study statistics given in Appendix 3 (p.41). Dissemination activities presented in the text are very good, and describe in full detail the events on page 12-14. Evaluation has been acknowledged, with necessary changes stated as being done to individual courses (section 4.2.2).

32. Course Content*					Yes, the course structure and content is in line with the CLIMASP objectives and deliver meaningful knowledge.
Leading questions	<p>10) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>11) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>12) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>				
Assessment and suggestions	<p>1) Yes, the courses cover subjects within the departments of Curriculum and Instruction, Business Economics, Mechanical Engineering, and Chemical Engineering. The knowledge delivered within each department is spelled out in Annex-2, and includes many core and elective courses.</p> <p>2) The core, elective and capstone courses offered are unique enough to constitute diverse interdisciplinary learning without much overlap. For example, the Mechanical Engineering department offers courses in Energy, Refrigeration, and Engines, while the Chemical Engineering department offers subjects ranging from Environmental Engineering to Waste Treatment and Management practices. There are also some connections between courses offered without overlap, such as Energy (Chemical and Mechanical Engineering).</p> <p>3) Yes, the individual departments are heavily involved in delivering knowledge for the CLIMASP minor courses, and have been involved in the development as well. This is also demonstrated by the Case Study author list encompassing 7 faculty members from the 4 main departments, and 1 from Geology.</p>				
33. Core Courses*					Yes, core courses are coherent and necessary in the multidisciplinary nature of CLIMASP.
Leading questions	Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment suggestions	The 3 core courses offered cross two of the major faculties with the addition of Geology. Even though Geology does not feature in the elective or capstone courses, the 'Environment' course offered is fundamental to climate change and				

	<p>sustainability disciplines. Therefore, even for students with majors in Engineering, Education, or Business, this core module is coherent and necessary. The courses will be challenging and informative to students from various disciplines. Core courses ‘Introduction to Political Economy’ contain information that transcends disciplines including environment, society, and economics. ‘Environment’ contain information that transcends disciplines including environment, society, science, technology, and public policy. ‘Introduction to Sociology’ describes links to other sciences but importantly tackles attitudes to social change, which are crucial in activating a national understanding in Climate Change and Sustainability issues.</p>				
34. Elective Courses*				Yes, most elective courses are coherent and meaningful. Some courses offered by the Education do not make direct links to CLIMASP.	
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment and suggestions	<p>The elective courses cover a number of disciplines, and students from any of the 4 degrees can find interesting courses to take. The options from the School of Business are relevant to the CLIMASP ideology, with courses covering Industry, Economics, Development, Management, Finance, and Contemporary Issues. Their course descriptions are coherent, and are multi and interdisciplinary. The School of Engineering also offers relevant elective courses to the CLIMASP ideology, covering Energy, Pollution, Engines, Treatment, Waste Management, Environmental Engineering, and so on. Their course descriptions are coherent, and are multi and interdisciplinary. The School of Education contains some very important elective courses, leading to better understanding of CLIMASP issues. These include Environmental Education, Mathematics and Design. Other modules such as child computer education and instructional materials for children <i>do no clearly link to CLIMASP, but can be important to future school teachers coming out of the CLIMASP program.</i></p>				
35. Capstone Course*				Yes, good practical experience gained, and the opportunity to learn at a public or private bodies outside of the University.	

Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?				
Assessment and suggestions	Yes, the capstone courses provide necessary practical experience across all disciplines. Beyond practical training, final year dissertations, and scientific research stages, the 'Community Service' is particularly appealing as it requires students to work at an institution for 8 weeks. It is unclear, though, whether the student projects are linked to stakeholder institutions. Explicitly defining this could greatly improve employment prospects, but also recruitment to the CLIMASP minors.				
36. Concentration Areas			Some improvement may be necessary, especially in linking courses to 'Environment and Society' concentration areas.		
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?				
Assessment and suggestions	<p>The University of Jordan mostly follows the 3 CLIMASP concentration areas of Environment & Society, Economics & Public Policy, and Science & Technology. These are well laid out in the case study on pages 20-24.</p> <p><i>The Environment and Society electives do not make much reference to Climate, Sustainability, and Development, except for 'Environment Education Child'.</i> There are links to 'Society' through education and practice elective and capstone courses, and through the 'Introduction to Society' core course, but others such as Basic Maths, Design, and Instructional Materials no not have a clear tangible connection. This needs to be expressed more explicitly.</p> <p>The Economy and Public Policy electives are very good, coherent, and are multi and interdisciplinary, taking advantage of the different disciplines. Many courses here are from the Faculty of Business which is very appropriate.</p> <p>The Science and Technology electives are very informative and the combination of engineering and chemistry is good. It might be expected to have more modules on food, agriculture, hydrology, and climate science, but this is understandable given the current department involvement, and statements of limitations or limited involvement from some Schools.</p>				
37. Program Flexibility					Yes, students will be able to build their own minor.
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own				

	minor?			
Assessment and suggestions	Yes, it is clear that the number and breadth of electives allows students to build their own minor according to their passions. A student from the School of Education can easily take courses in the engineering or Business electives. Furthermore, a student will cover fundamental core courses across disciplines from science to economics, and sociology. Students can take courses within and outside their own department (p. 6).			
38. Credit Allocation				Yes, from the example provided. Make clearer how many electives from each concentration area can be taken.
Leading questions	Is the workload appropriate for each course (credit allocation)?			
Assessment and suggestions	The credits for each course is given in section 4.2.2, stating that the capstone courses are 10 ECTS, the elective and core courses are 5 ECTS. This results in 15/10/25 from the core, capstone and 5 elective courses respectively. This is within the 45-60 ECTS required for CLIMASP and the Euro-Arab Diploma. <i>Perhaps make clearer how many electives need to be taken from each concentration area.</i> In terms of workload, there are examples of courses given in the Caste Study, i.e. Chemical Engineering modules. The amount of work and activities for these are appropriate for a single module.			
39. Skills and Assessment*				Yes, from the example provided.
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?			
Assessment and suggestions	In terms of workload, there are examples of courses given in the Caste Study, i.e. Chemical Engineering modules. For this example, assessment comes in the form of assignments (10%), group project (10%), midterm exams (30%), and final exam (50%). This seems appropriate for the workload. Also, this is diverse so that first students are not stressed by one single assessment, and second can challenge and develop a student's interdisciplinary learning.			
40. Student Experience*				Yes, there is flexibility to change and improve the CLIMASP program, tailored to improving or

						maintaining high student satisfaction.
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?					
Assessment and suggestions	Yes, the students can take courses that will enhance their experience of the Climate Change and Sustainable subjects. The conclusion on page 16 identifies the need for a mechanism of regular feedback from CLIMASP faculty members and the students to provide sufficient information on the project's academic development. Furthermore, there is interest in enhancing the cooperation and exchange activities between all included universities, giving students experience from universities beyond their own, and potentially beyond their own country. There is also built-in flexibility to increase the number of departments involved in CLIMASP if there is interest, increasing the academic flexibility of elective and core courses available to students.					

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

HELIOPOLIS UNIVERSITY EGYPT

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
41. Program Objectives & Outcomes				YES. No reporting on stakeholder agents, and more systematic reporting of the CLIMASP phases.	
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				

Assessment and suggestions

Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners.

Heliopolis recognised at the beginning of the CLIMASP project (p. 11), that the main challenge from the teaching faculty were not very familiar with aspects of climate change and sustainability. In order to help the teaching faculty and to prepare them for implementing the CLIMASP courses, a series of National and Regional Training Workshops were attended throughout the implementation of the CLIMASP Project. In these workshops, teaching faculty members from each of the involved faculties were invited to participate, and their spreading of the knowledge from the workshops were disseminated within the faculty. The ICT lab at Heliopolis (p. 3) with its 35 desktops and laptops has also helped in delivering teaching and training. The labs are necessary for delivering lectures and seminars, use technology in teaching Sustainable Development, making models for predictive climate science, and connect with international partners.

Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMATE change and Sustainability Policy (CLIMASP) in each partner country university.

Faculties of Business & Economics, Engineering, and Pharmacy & Drug Technology were involved in CLIMASP at Heliopolis. It is stated (p. 2) that Heliopolis is a research intensive university, and that faculty cover aspects of climate change social issues, sustainable development, interdisciplinary subjects, but also importantly curriculum development! Therefore there is a collective focus at Heliopolis with curriculum design and development. *Note, stakeholders are mentioned in the dissemination activities, but not in the development of the CLIMASP programme.*

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

The CLIMASP minor programme at Heliopolis is administered by the Euro-Arab Center for Interdisciplinary Studies. Heliopolis acknowledges they are not accredited by external bodies, but are actively seeking to remedy this by obtaining accreditation by the Supreme Council of Universities (SCU) and AQAS. Furthermore, in table 1, it is stated that CLIMASP courses at Heliopolis have undergone the implementation phase with 50 student surveys received and analysed. Among the achievements of the implementation of the project was the shift in students' perception Education for Sustainable development and its transformative approach to education. The faculties involved; Business& Economics, Engineering, and Pharmacy & Drug Technology cross the broad disciplines of applied and technology science, economic and business science. *Social science and education science does not seem to be explicitly covered, yet Heliopolis has stated in the case study that they are sensitive to issues of curriculum development and delivery.*

Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.

Good table of key strategic goals related to CLIMASP, the main activities, and the expected short and long term

	outcomes to 2025. (Page 4). Dissemination and exploitation activities are well defined on page 12 and Table 3; pilot and implementation phases are described on pages 7-11; design and development is only briefly mention in the ‘Challenges’ section on page 11. <i>Explanations of these phases could be made more systematic in the case study.</i>				
42. Course Content*				Yes, the overall course structure and content is in line with the CLIMASP objectives. No educational sciences courses, and it might be expected to have more courses called ‘Climate Change’ or ‘Sustainability’.	
Leading questions	<p>13) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>14) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>15) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>				
Assessment and suggestions	<p>1) Thirty-two courses have been developed for CLIMASP consisting of three core courses, a capstone course, and 28 electives, delivered across the 3 faculties. Courses names are also found at: http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Heliopolis-University-CLIMASP-MINOR.pdf. The courses offered cross multiple disciplines including business/economics sciences (Entrepreneurship/Business Ethics/Green Marketing/Developmental Economics/Political Economy), social sciences (Corporate Social Responsibility/Global Social Issues/Media and Public Communication/Services Marketing), applied and technical sciences (Water Engineering/Sanitary Engineering/ Social Research and Networking/Renewable Energy/Microbiology). There are a few courses that seem too general, but it is explained in the case study that many of these were explicitly worked on to bring in line and infuse aspects of CLIMASP into them. <i>There are no courses which include in the titles ‘Climate’ or ‘Sustainability’.</i> There are a number that include ‘policy’. <i>It is not clear why ‘Water Soil Relationship’ should be a core course.</i></p>				

	<p>2) Many of the courses offered are important to provide students with a large choice across all faculties involved. There are a few novel ones and ones directly relevant to life in Egypt such as desalination, water treatment, sanitary and water engineering, political economy, global social issues, amongst others. These will catch the interest of students interested in climate change and sustainability. Some of the courses offered overlap a little. These include ethics courses (Business ethics and Ethical Economics), policy courses (Politics, Policy, and Polity, Economic Policies, Political Economy), and water engineering. Yet many of these overlaps are in the same departments which already know how differentiate the material they are teaching, so it does not seem to be an issue.</p> <p>3) There are 3 faculties involved in the delivery of the courses, and have been involved since the design phase and the pilot and implementation phase. Each faculty provides a number of modules appropriate for CLIMASP and appropriate in the context of Egypt (e.g. water related courses). All faculties teach a number of courses. Individual departments also deliver many courses, with the fewest delivered by Basic Sciences, Economics, and Microbiology and Public Health.</p>				
43. Core Courses*			Core courses could be rearranged to include a social sciences course like Global Social Issues, creating a diverse model of knowledge covering social, economic and technical sciences.		
Leading questions	Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment suggestions	<p>The 3 core courses offered are from the faculties of Business& Economics, and Engineering, spread out over three departments (Management / Economics / Water Engineering). These courses are ‘Natural Resource Management’, ‘Environmental Economics’ and ‘Plant Water Relationship in Soil’. <i>Note a brief descriptions of these are not available in the case study document or online.</i> ‘Natural Resource Management’ is a good core course and directly related Egypt and its high population density and limited agricultural space and water supply. ‘Environmental Economics’ is a good core course and will take an economic perspective on the environment, and is important for the understanding of sustainability issues related to CLIMASP. ‘Plant Water Relationship in Soil’ also is an important topic for Egyptian students but it is not clear why it should be a core course, especially for students that come from the faculties of Pharmacy or Business. <i>Of these 3 courses, two courses are economic, and one course is science and technology. It is understood that social science</i></p>				

	<i>faculty were not part of CLIMASP at Heliopolis, but there are elective courses that could cover this gap, e.g. 'Global Social Issues'. Perhaps include the Engineering topic and replace one of the business& economic topics with a social science one.</i>				
44. Elective Courses*				Yes, electives are meaningful, covering engineering, economics, policy, and ethics. In the future Heliopolis could include topics in the education sciences, but also directly linking with agriculture, land cover and climatic changes	
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment and suggestions	There are 28 electives offered across 3 faculties. As stated above, these courses are diverse and successfully constitute interdisciplinary learning, matching the CLIMASP ethos. There is a good mix between general CLIMAPS courses (e.g. Entrepreneurship / Developmental Economics /Politics, Policy, and Polity /Bioenergy Conversion / Botany), and ones directly relevant to life in Egypt such as desalination, water treatment, sanitary and water engineering, political economy, amongst others. Beyond business, economics, pharmacy, and engineering, there is also a good mix of topics such as ethics (e.g. Business ethics) and policy (Policy, and Polity, Political Economy). <i>There also could be a little focus on agriculture, land cover and climatic changes which are crucial in Egypt.</i>				
45. Capstone Course*				Yes, practical based learning is explicitly described, and connections beyond the academic world is described. It is not clear if this is using stakeholder links.	

Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?				
Assessment and suggestions	<p>The capstone course at Heliopolis included the graduation project. Each faculty will have their own graduation project and the projects are required to be in a Climate Change related subject. Collectively at Heliopolis, a very heavy emphasis is placed on the practical side and project aspect of the courses in terms of both content and assessment (p.9). It is also stated (p. 2) that it is essential that all students (and instructors) engage in practical activities, combining academia with real world knowledge. It is assumed, through these descriptions, that students will have the opportunity to interact with the real world using links with stakeholders.</p> <p><i>Also, why is there a 'Water Engineering Project' as an elective? Is this different from a capstone style course?</i></p>				
46. Concentration Areas				<p>The course links to the concentration areas are good. <i>Please include the concentration areas in the case study document. They are currently missing.</i></p>	
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?				
Assessment and suggestions	<p><i>The concentration areas are not defined in the case study document, but are given online on the www.ictinesd.org website.</i></p> <p>The 'Science and Technology' concentration area contains courses that are well placed. The 'Environment and Society' and 'Economy and Policy' concentration areas are also appropriate (online). I am only unsure of <i>Politics, Policy, and Polity</i> which may belong in the 'Environment and Society' concentration area. This is left to the discretion of the CLIMASP team at Heliopolis (i.e. this may be OK). <i>Please include the concentration areas in the case study document.</i></p>				
47. Program Flexibility				<p>It is currently assumed only that all elective courses from the 3 faculties involved can be taken by all students from all majors. Also please indicate how</p>	

				many electives from each concentration area.	
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own minor?				
Assessment and suggestions	It is stated in the case study document that students at Heliopolis will take capstone courses related to their own faculty, and the core courses will be available to all students. It is also currently <i>assumed only</i> that the elective courses will be available to all students from the different disciplines. <i>Please also make clear whether students are required to take at least one (or more) elective from each concentration area.</i>				
48. Credit Allocation				Credit allocation for all CLIMASP courses appears fine. Does Heliopolis follow a 50 or 60 ECTS CLIMASP model? It should also be made clear whether students have to take at least one course from each concentration area.	
Leading questions	Is the workload appropriate for each course (credit allocation)?				
Assessment and suggestions	The CLIMASP minor at Heliopolis contains 60 ECTS (stated on page 4), of which at Heliopolis the capstone course is 10 ECTS, the core courses are 5 ECTS, and the elective courses are 5 ECTS each. This results in 15/10/35 ECTS from the core, capstone and elective courses respectively. There will be 7 electives taken if the total ECTS is 60. <i>This should be made clear to the students, as other CLIMASP institutions will work with a 50ECTS model. As before, the knowledge of how many electives are needed from each concentration area will be useful to the students.</i>				
49. Skills and Assessment*					Yes, from the example provided.
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				

Assessment and suggestions	<p>There are examples of courses provided by Michele Biasutti, i.e. Green Marketing and Business Ethics. For both these courses, the assessments will be based on assignments (20%), class participation (10-20%), and quizzes/exams (60-70%). These assessments follow learning objectives covering understanding of concepts and theories, critique of these concepts, developing changing practices to include sustainability, realize the impact of climate change on the global economy and the role of businesses in tackling it. These assessments are appropriate to the learning objectives, are original, and diverse so that students are not stressed by one single assessment, and can challenge and develop a student's interdisciplinary learning depending on the course.</p>				
50. Student Experience*					<p>Yes, it is clear that Heliopolis values student opinion and feedback, and has stated they are ready to make adjustments following feedback (not know if this is future year to year changes).</p>
Leading questions	<p>Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?</p>				
Assessment and suggestions	<p>The student experience is described in various sections of the case study document. Heliopolis empowers their students to be the "champions of sustainable development in different spheres of life, providing a place where new ideas meet fertile ground for further research and teaching. Their education model effectively combines teaching, research, and practice with a uniquely humanistic core program, developing curious and creative minds (Page 1). Furthermore, students become capable of internalizing the different concepts of Sustainable development and its impact on their world, obtaining the scientific knowledge of the world around them to understand exactly the challenges facing them (Page 2). These comments ensure a heightened student learning experience, putting their studies in wider regional and global significance. On page 4 of the case study document, it is also made clear that adjustments and subsequent enhancement can be made to the CLIMASP minor based on the feedback of the students, instructors, and the Euro-Arab Center. <i>It is not known if this is a year-to-year process or only following the initiation phase.</i> Yet, it is clear that Heliopolis values student opinion and feedback.</p>				

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

ASWAN UNIVERSITY EGYPT

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
51. Program Objectives & Outcomes		Description are lacking in the case study, even if some have already been done. These include 1) Involvement of Staff and Stakeholders; 2) describe the CLIMASP process step by-step including implementation and pilot study 3) describe the ICT lab; 4) Describe the individual courses.			
Leading questions	To what extend there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	<p>Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners.</p> <p>Aswan University team has performed activities such as training workshops, meetings, web site page, mailing list, brochures, banners, flayers and student guidelines (p. 3). It is also stated that the CLIMASP minors will help teaching staff obtain better understanding in teaching the concept of climate change and sustainability (p.3). Aswan has expressed applying values of Problem-based learning (PBL) for CLIMASP interdisciplinary teaching (p. 1). Furthermore, the Information and Communication Technology Laboratory was integrated into the Euro-Arab Centre for Interdisciplinary Studies and Climate Change (p.3). <i>Details of the ICT lab, and details of the training activities are not provided in the case study.</i></p>				

	<p>Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMATE change and Sustainability Policy (CLIMASP) in each partner country university.</p> <p><i>The case study document does not give any indication of the university staff, the faculties, or the stakeholders involved in the development of the CLIMASP minors. Information on the faculties involved comes from the ICT in ESD website (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Aswan-University-CLIMASP-MINOR.pdf).</i></p> <p>The seven Faculties involved are Law, Commerce, Science, Engineering, Social Work, Fisheries technology, and Education.</p> <p>Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.</p> <p>The CLIMASP minor programme at Aswan is administered by the Euro-Arab Center for Interdisciplinary Studies. The case study states that there were some initial problems in getting the minor certified, but now it is part of the Euro-Arab Center. The faculties involved (from the website, not the case study) cross multiple disciplines necessary for the interdisciplinary delivery of CLIMASP. Faculties are in the education sciences (F. of Education), applied and technical sciences (F. of Science, F. of Engineering, F. of Fisheries), economic/business sciences (F. of Commerce, F. of Law), and social sciences (F. of Social Work). <i>It has not been stated whether CLIMASP has gone through the implementation phase.</i></p> <p>Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.</p> <p><i>Explanations of these phases in not well defined in the case study. Only Exploitation and Dissemination is briefly stated in the document. Dissemination activities stated include publishing a web site page, mailing list, brochures, banners, flayers and student guidelines. Although I cannot find the website page (address not provided).</i></p>				
52. Course Content*			<p>Most Course content is in line with CLIMASP ethos. It is unclear if all majors have access to all 25 electives. PLEASE PROVIDE ALL COURSES ON THE CASE STUDY DOCUMENT</p>		

<p>Leading questions</p>	<p>16) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>17) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>18) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>			
<p>Assessment and suggestions</p>	<p>1) Thirty-one courses have been developed for CLIMASP consisting of three core courses, three capstone courses, and 25 electives, delivered across the 7 faculties. <i>All the courses, though, are not defined in the case study and have been found online outlines (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Aswan-University-CLIMASP-MINOR.pdf). The courses offered cross multiple disciplines including human rights, community health, environment and family issues, education and environmental service, engineering and energy, project management, fish adaptation, plant ecology, renewable energy, pollution, and energy conservation. There are courses offered that do not seem to link to the CLIMASP ethos. These will be dealt with in question 3/4.</i></p> <p>2. Many of the courses offered are important to provide students with a large choice across all faculties involved. There are a few very novel ones as well, such as fish adaptation, engineering and energy, and environment and family issues! These will catch the interest of students interested in climate change and sustainability. Some of the courses offered overlap a little. These include energy related topics (Engineering and Energy/Energy Conservation and Utilization), Vegetation related topics (Flora/Plant Community/Plant Ecology/Ecology of Algae) and heat (Thermodynamics/Heat and mass transfer). It is recognised that each topic may be slightly different due to faculty interest and vision.</p> <p>3) There are a 7 faculties involved in the delivery of the courses, but it is unknown if they have been involved in a pilot study or implementation. Currently Commerce, Law, and Fisheries only teach one module! <i>This may result in these faculties pulling out, or students not having access to all courses. Furthermore, it is not clear from the case study or the online material if students will have the possibility to take modules from different faculties, i.e. access to all 25 electives.</i></p>			
<p>53. Core Courses*</p>				<p>There needs to be an explicitly connection of the CLIMASP ethos to your three chosen core courses.</p>
<p>Leading questions</p>	<p>Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?</p>			

Assessment suggestions	<p>The 3 core courses offered are from the faculties of law, commerce, and science (mathematics). These are Human Rights, Economic and Environment, and Computer Science. <i>Brief descriptions of these are not available in the case study document or online.</i> ‘Human Rights’ is a good core course taking a legal perspective. Other universities also have human rights issues as a core course, and is important for the understanding of sustainability and policy issues related to CLIMASP. ‘Economic and Environment’ will take an economic perspective on the environment, and is important for the understanding of sustainability issues related to CLIMASP. Also it may be preferable to call the module ‘Economy and Environment’. ‘Computer Sciences’ most likely takes advantage of the computer labs to teach students essential IT skills needed in today’s world to tackle climate change issues. Yet, it is not clear how this, as a core course, is directly linked the CLIMASP character. Perhaps there is the intention of offering climate change knowledge through computer practicals. If this is the case, then it is appropriate. <i>It should be made very clear that the core courses touch on aspects of Climate Change, Sustainability and Policy. If these links are not made clear, then students will fail to see connections between the minor and the CLIMASP ethos.</i></p>				
54. Elective Courses*				Yes, electives are meaningful. Some courses are general and do not make clear connections to CLIMASP.	
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment and suggestions	<p>There are 25 electives offered across 7 faculties (<i>again found online</i>). As stated above, these courses are diverse and successfully constitute interdisciplinary learning, matching the CLIMASP ethos. Yet, there are many that do not seem to directly match CLIMASP, appearing to offer general knowledge. It is difficult to know without course summaries exactly how many are general. Courses that appear general include Community Health, General Sociology, Principles in Psychology, Project Management, Flora, Thermodynamics, Heat and mass transfer. <i>It needs to be made clear why these courses are necessary for CLIMASP, and how they offer interdisciplinary knowledge for climate change, sustainability, and policy.</i></p>				
55. Capstone Course*			1) Better description of Capstone courses in the case study document. 2) Better connection to		

			stakeholders.		
Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?				
Assessment and suggestions	The capstone course include a Graduate Project, a Research or Article, or Field Training, delivered by the faculties of Engineering, Science and Social & Education. <i>The course names are meaningful, but without a description, it is not known what type of knowledge is delivered, or if there are direct links to stakeholders though volunteering and internships.</i> The case study describes the graduate project briefly, stating that the graduation project is shared by various faculties, and that this was embedded within the Euro-Arab Centre is charged with relating the project to climate change.				
56. Concentration Areas				OK linkages to the concentration areas. It is a shame that the 'Economy and Policy' concentration area is not thicker considering the involvement of the Fac. of Commerce.	
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?				
Assessment and suggestions	The courses on the whole are well placed into the three concentration areas, with a few suggestions. The 'Environment and Society' concentration area contains a course on 'Engineering and Energy History'. Although historical, it may be better placed in the Science concentration area. The 'Science and Technology' concentration area contains courses that are well placed. The 'Economy and Policy' concentration area is short with only two courses. First, 'Project Management' does not appear to be related much to the economy. 'Economic Geology' makes sense in this concentration area. It is a shame that more are not included, especially as the faculty of Commerce is involved in teaching a core course.				
57. Program Flexibility				It is currently assumed only that all courses from the 7 faculties involved can be taken by all students from all majors.	
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own				

	minor?				
Assessment and suggestions	It is not clear from the case study or the online material if students will have the possibility to take modules from different faculties, i.e. access to all 25 electives. If they can have access to all 25 electives, then this will greatly benefit the students allowing challenging and interdisciplinary learning.				
58. Credit Allocation					Credit allocation for all CLIMASP courses appears fine. It should be made clear whether students have to take at least one course from each concentration area.
Leading questions	Is the workload appropriate for each course (credit allocation)?				
Assessment and suggestions	There is little to no information on credit allocation for each course on the case study document, but there is information online (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Aswan-University-CLIMASP-MINOR.pdf). The capstone course is 10ECTS, the core courses are 5 ECTS, and the elective courses are 5 ECTS each. This results in 15/10/25 ECTS from the core, capstone and elective courses respectively. The choice and workload will be clear for students wishing to enrol onto the CLIMASP minor. What is not clear is whether students will be forced to take at least one course from each concentration area.				
59. Skills and Assessment*					
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				
Assessment and suggestions	There are no examples of courses for Aswan University, so there is no possibility of commenting on the assessment or skills learned.				
60. Student Experience*				Student learning and raising awareness is key to the CLIMASP minors at Aswan. It is not known if students can	

				continue to influence courses in the future.	
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?				
Assessment and suggestions	It is stated in the case study that CLIMASP will help students be aware of environment and the alterations that may take place in its conditions. In addition, they will be able to participate actually in solving problems. Consequently, the students can learn how to solve a real-life issue/problem. Furthermore, it is stated that students coming out of CLIMASP would be better to tackle issues of sustainable development of Aswan region and consequently in Egypt (p. 2). These comments ensure a heightened student learning experience, putting their studies in wider regional and global significance. It is not known or stated if the students are able to provide feedback to lecturers, resulting in changes of course from year to year				

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

SUEZ CANAL UNIVERSITY EGYPT

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
61. Program Objectives & Outcomes				YES. More reporting on stakeholder agents, and information on the ICT lab.	
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners. Suez Canal University (SCU), which is headed by the faculty of Education, has participated in two Tempus projects prior to CLIMASP, which has helped in faculty member orientation and training in sustainability issues. These programs				

were the RUCAS (reorient university curricula to address sustainability) and the second is EduCamp (education for sustainable development beyond campus). During the CLIMASP project, SCU participated in three regional workshops and a number of national workshops/meetings. These were at the phase of mapping the courses for the minors (p 5-6), peer review (p. 6-7), external evaluation and changes of courses (p. 9), and as part of the dissemination activities (p.12). There are a number of conferences and workshops held by SCU for capacity building and training not only benefitting the lecturers, but also the students (see dissemination activities on p. 24-27). This has led SCU to develop crucial teaching methods such as Problem-based learning (PBL) employed throughout the CLIMASP curriculum and teaching methods, and blends classroom learning with experiential, constructivist and transformative practices, incorporating critical self-reflection, argumentation, community service, civic engagement and practicum placements (p. 7). *A description of the ICT- interdisciplinary centre is not given in this case study.* Yet, there are references of ‘computers’ and ‘GIS’ throughout the document. Perhaps this is already covered by the Faculty Of Computers And Information.

Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university.

The faculties and the number of personnel in each faculty is clearly stated in the case study (p.6). These are the Faculties of Education, Engineering, Agriculture, Science, Arts & Humanities, Vet Medicine, and Tourism, with a 14 member team in total. The stakeholder’s involvement is clearly described in the case study (p. 5). The stakeholder’s meeting involved 23 people representing University students and staff, the Ministries of Environmental Affairs/ Education/ & Industry, Local municipals, and the private sector. Stakeholders were involved in the process of reorienting the courses and infusing climate change in the courses. The outcomes from implementing the stakeholders’ survey helped in reorienting the courses which assisted in turn in bridging the gap between theory and practice in the studies of climate change. *It would be beneficial to include the names of the private sector and municipal stakeholders.*

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

The CLIMASP minor programme at SCU is administrated by the Euro-Arab Center for Interdisciplinary Studies which is part of the SCU’s Center for community service. SCU has previous experience in implementing sustainability and development issues into their courses through the RUCAS and EduCamp initiatives prior to CLIMASP. CLIMASP is integrated into 7 faculties, which range from the education sciences (education), to applied and technical sciences (engineering/ science/ agriculture/vet medicine), economic sciences (tourism), to social sciences (arts&humanities). CLIMASP has been implemented (section 7 p. 9-10) at SCU through all faculties resulting in 172 students in total, with the majority of students in the faculties of Education and Arts. Problems and solutions of the implementation phase are

	<p>well described. For example, student's found it difficult to commit to the modules and workload and some student's had difficulties in computer technology.</p> <p>Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.</p> <p>The processes of design (sections 1-2 but not called 'design'), development and monitoring (section 3-4), pilot study (section 5), dissemination (appendix 1), and review (section 3) are defined in the case study report, <i>although this could be presented more clearly at times</i>. Dissemination activities are excellent and are described in detail in the appendix 1 (p. 20-31) and in the document (p. 12-14). These include social media, student and faculty conferences and projects, and student fairs and exhibitions. The pilot phase resulted in students gaining knowledge in climate change and sustainability (p. 9), resulted in mixed appreciation for the interdisciplinary approach of CLIMASP, and a mixed understanding of the outcome of the minor in terms of employability. Online material on CLIMASP as CSU cannot be found, apart from the course outlines (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Suez-Canal-University-CLIMASP-MINOR.pdf).</p>				
62. Course Content*			<p>Most Course content is in line with CLIMASP ethos. It is unclear if all majors have access to all 36 electives. There is a little overlap between courses. PLEASE SHOW ALL COURSES ON THE CASE STUDY DOCUMENT</p>		
Leading questions	<p>19) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>20) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>21) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>				

Assessment and suggestions	<p>1) Forty one courses have been developed consisting of three core courses, 12 in each CLIMASP concentration areas, and the two capstone course. CLIMASP will be delivered from the seven faculties across sciences and social sciences, but three of these have defined their involvement in more detail Agriculture, Engineering, and Tourism (p.14-16). <i>All the courses, though, are not defined in the case study and have been found online outlines (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Suez-Canal-University-CLIMASP-MINOR.pdf). Examples of 15 courses are given in the final appendix of the case study. The online pdf shows all 7 faculties and a number of departments teaching into CLIMASP. The courses are very diverse, and include topics like zoology, pest control, species extinction, geology, horticulture, hazards, remote sensing and GIS, pollution, energy, public health, conservation, eco-tourism, urban renewal, psychology, ancient history, and public service. On the whole these cross the major disciplines required by CLIMASP. <i>There are courses offered that do not seem to link to the CLIMASP ethos, especially in the 'Environment and Society' electives. These will be dealt with in question 3/4.</i></i></p> <p>2. The majority of the courses offered are sufficiently different to provide students with large choice in the electives, and cross all seven faculties involved. Given there are 41 courses offered there does seem to be a little overlap, e.g. there are three courses dealing with pollution (geo environmental pollution, water pollution, energy and environmental pollution), two on horticulture, three ancient history modules (Egyptian, Greek, Roman), and two on protection and conservation (Environmental Conservation Policies, Protected Areas). Yet, each has a slightly different title, so perhaps can be kept as is, just make sure the descriptions are meaningfully different.</p> <p>3) There are a 7 faculties involved in the design and development process, as well as the implementation phase. There is currently no reason why these faculties should not continue teaching into CLIMASP, and the case study states that there are more people sought to joint CLIMASP. <i>YET, it is not clear from the case study or the online material if students will have the possibility to take modules from different faculties, i.e. access to all 36 electives.</i></p>				
63. Core Courses*			There needs to be an explicitly connection of the CLIMASP ethos to your three chosen core courses.		
Leading questions	Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment suggestions	The 3 core courses offered are from the faculties of education, tourism, and architecture. These are Marketing Research, Research Methodologies, and Environmental Studies. Marketing Research (p.36) focuses on qualitative and quantitative knowledge used in market research, which provides a foundation to understand markets and consumers. This is an important topic, but does not seem to make a direct link to the CLIMASP ethos. Research Methodologies has some				

	connections to the CLIMASP ethos (from case study document), although there is some overlap with ‘Marketing Research’. ‘Environmental Studied’ offered by Architecture, directly links to the CLIMASP ethos (course also provided by M. Biasutti). <i>It should be made very clear that the core courses touch on aspects of Climate Change, Sustainability and Policy. If these links are not made clear, then students will fail to see connections between the minor and the CLIMASP ethos.</i>				
64. Elective Courses*				Yes, electives are meaningful. Some courses are general and do not make clear connections to CLIMASP. Even if some of these are removed, the remainder are good and provide meaningful knowledge.	
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment and suggestions	There are a large number of elective courses (36), offered across 7 faculties (<i>again found online</i>). As stated above, these courses are very diverse and successfully constitute interdisciplinary learning, matching the CLIMASP ethos. Some of these are technologically driven, e.g. geology modules, conservation modules, and remote sensing/technology driven. There are quite a few that do not seem to match the CLIMASP ethos, but are general modules. These include ancient histories of Egyptians, Romans, and Greeks, Curriculum Development, occupational psychology, Mites, advertising, and Biology2. It needs to be made clear why these courses are necessary for CLIMASP, and how they offer interdisciplinary knowledge for climate change, sustainability, and policy. Also, ‘Environmental Studies’ is both a core and an elective??				
65. Capstone Course*			1) Better description of Capstone courses in the case study document. 2) Better connection to stakeholders.		
Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based				

	learning opportunities (service learning)?			
Assessment and suggestions	<p>Information on capstone courses in the case study document not easy to find. The names of these are available online and are ‘Sustainable Communities’, and ‘Climate Change and Sustainable Policy’ (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Suez-Canal-University-CLIMASP-MINOR.pdf). <i>The course names are meaningful, but without a description, it is not known what type of knowledge is delivered, or if there are direct links to stakeholders though volunteering and internships.</i> There is some information on the case study about the type of learning required in a capstone course. For example on page 8, SCU state that ‘civic engagement should be reflected in teaching methodologies (community-based learning, service-based learning, and project-based learning)’. Furthermore, student projects are described on page 13-14, with a few success stories and publishable papers resulting from student projects. Community-based learning described here indicates involvement of student projects with non-academic stakeholders. It is also clear that both capstones will be offered to all students (online pdf).</p> <p>The case study should be clear about what SCU is offering in terms of its courses.</p>			
66. Concentration Areas			<p>OK linkages to the concentration areas. Some in the ‘Environment and Society’ area are general and may not link to the CLIMASP ethos. Removing these may result in too few courses in this concentration area.</p>	
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?			
Assessment and suggestions	<p>The courses on the whole are well placed into the three concentration areas. I only have a few suggestions. More of the suggestions are about courses which do not link to CLIMASP well (as stated before)</p> <p>The ‘Economics and Public Policy’ concentration area contains a course on ‘Mites’ which may be a scientific topic.</p> <p>The ‘Science and Technology’ concentration area contains a course on ‘Energy resources’ which may be better placed in the ‘Economics’ concentration area. This also contains a ‘Biology’ course, which seems ok, but a little general for CLIMASP.</p> <p>The ‘Environment and Society’ contains some relevant modules, but many of these are general and do not directly link to CLIMASPs’ ethos. These include ancient histories of Egyptians, Romans, and Greeks, Curriculum Development, Occupational Psychology, French grammar teacher of pre-school child. These currently do not make direct links to the</p>			

	'Environment and Society' concentration area, or CLIMASP in general. <i>Please change content/ change title/ or delete. Removing these may result in too few courses in this concentration area.</i>				
67. Program Flexibility				It is currently assumed only that all courses from the 7 faculties can be taken by all students from all majors.	
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own minor?				
Assessment and suggestions	It is stated that 'Students from different study areas choosing the CLIMASP minor as a complement of their major opens to them new opportunities for further studies and career paths.' YET, <i>it is not clear from the case study or the online material if students will have the possibility to take modules from different faculties, i.e. access to all 36 electives. If they can have access to all 36 electives, then this will greatly benefit the students allowing challenging and interdisciplinary learning</i>				
68. Credit Allocation			Credit allocation for the electives is confusion as they are weighted differently. The two course examples have different ECTS, but the difference in workload is not evident.		
Leading questions	Is the workload appropriate for each course (credit allocation)?				
Assessment and suggestions	There is little to no information on credit allocation for each course on the case study document, but there is information online (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Suez-Canal-University-CLIMASP-MINOR.pdf). The capstone course is 10ECTS, the core courses are 5 ECTS, and the elective courses ranging from 3 ECTS to 5 ECTS. This is a little confusing. It is unclear first, how many elective courses a student can take and how many from each concentration area. There are 25 ECTS from the core and capstone courses, so there are 25 left for the elective courses (according to a 50 credit minor as stated in the case study document). This creates an unconventional				

	<p>mix of subjects students have to take, e.g. 5x3ECTS electives and 2x5 ECTS electives. <i>Why not try to equalize the credits taken for each concentration area, or make all electives have the same credits?</i></p> <p>In terms of workload, there are examples of courses provided by Michele Biasutti, i.e. Architectural Design/ Environmental Studies / Physical Geology. There are also 16 course descriptions in the case study. The descriptions of the courses offer insight into the objectives, learning outcomes, and any technical skills the student will learn. From the assessment and workload of the three courses provided by Michele Biasutti, it is not clear how the 3 ECTS course 'Architectural Design Studio' is different from the other two 5 ECTS courses.</p>			
69. Skills and Assessment*				<p>Yes, according to examples provided. Not clear how 3ECTS course is different in assessment from 5 ECTS courses.</p>
Leading questions	<p>Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?</p>			
Assessment and suggestions	<p>There are examples of courses provided by Michele Biasutti. i.e. Architectural Design/ Environmental Studies / Physical Geology. The 5ECTS courses (Environmental Studies / Physical Geology) have assessment based on assignments/exams/final research poster (20/50/30%) for environmental studies and assignments and exams (40/60%) for geology. Architectural Design a 3 ECTS course has assignments (30%), exams (50%), and final project (20%). This is fine and is diverse enough to allow students to be assessed in different manners. It is not clear why one module is 3ECTS here.</p>			
70. Student Experience*				<p>Students feedback is well places at SCU. It is not known if students can continue to influence in the future.</p>
Leading questions	<p>Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?</p>			
Assessment and suggestions	<p>There are examples of recognising both positive and negative feedback at SCU. The faculty of Agriculture has asked for student feedback during and after trips and showed a significant amount of success of field trips as educational tool.</p>			

	<p>Student response to exams showed relationships between field trips and student knowledge, and skills gained throughout the field trips. The faculty of Engineering has an inbuilt 'Integrated Design Approach' in its teaching. Solutions defined for the CLIMASP program after the pilot and implementation phase demonstrate that SCU can incorporate student feedback (p. 11-12). This includes encouraging students to fill in questionnaires by approaching them individually, provide student support to finish all the requirements of each module within the deadline, and project staff set office hours for students. These factors demonstrate that students at SCU have the ability to feedback and influence the CLIMASP organisers. It is expected, although not explicitly stated, that future years will also take student feedback into account.</p>
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*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

PORT SAID UNIVERSITY EGYPT

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
71. Program Objectives & Outcomes			<p>Due to issues illustrated in the Case Study, some aspects of the CLIMASP outcomes were not completed (e.g. Pilot Study). Also, describe the ICT lab / define who the stakeholders are / describe the CLIMASP process step by-step.</p>		
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				

Assessment and suggestions

Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners.

Port Said University participated in three national and two regional meetings and workshops stated very clearly on Table 2 p.8. These workshops were at different phases of the CLIMASP process, from the design, to course development, pilot and implementation phases. During these meetings there were discussion but also training on how to restructure the 30 courses using modular design (p.9). Port Said has also created an ICT-equipped interdisciplinary centre, to build qualified academic, professional and technical CLIMASP cadres, to conduct research, and to offer education, training and consultation services on the area at local, national, regional and international levels (p.8). *Yet, details of the ICT lab are not give in the Case Study.*

Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university.

Information of faculties and staff involved is given in Table 1 p.5, and includes the six faculties of Science, Education, Engineering, Commerce, Medicine, and Arts, with the largest course contribution from the faculty of Science. It is noted that, as with some other universities, CLIMASP team members are volunteers, who have other commitments, meaning that many of them left for various reasons. The Euro-Arab Centre for interdisciplinary studies was declared as an independent academic unit with the hierarchies illustrated in Figs (14 & 15). Full time academic and administrative staff members are currently being recruited. Stakeholder surveys were done and curriculum design and development were influenced from these surveys. *There is little information stating who these stakeholders were, and should be defined in the Case Study.*

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

The Euro-Arab center has been key to institutionalizing the CLIMASP program at Port Said, but also leading to the hunt for permanent faculty belonging to an official and independent academic unit. Euro-Arab center at Port Said uses stakeholder institutions such as faculties, departments, and youth & business communities to explain and promote the center's role in providing services, knowledge training, consultation as well as programs of relevance to CLIMASP issues. CIMASP is integrated into 7 degrees in the faculties of Science, Arts and Engineering, including the majors of Climate Geography, Air Pollution Management, Energy and Environment, Renewable Energies, Egyptian and International Environmental Law and Policy, Environmental Impact Assessment of Projects, and Environmental Control in Architecture (see table 4 page 10). These cross the disciplines of applied and technical sciences, economics/management and social sciences. Currently, there is no Education Department in the implementation phase,

	<p>but there are 5 courses offered from the faculty of Education.</p> <p>Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.</p> <p>The processes of design, development, and review are described loosely in the section ‘PSU CLIMASP CASE DESCRIPTION’. Implementation is defined in page 10 and Table 4. Dissemination is described on page 12-13. Challenges are described on page 11-12. <i>These sections need to be defined step by step to understand the progression of the CLIMASP program at Port Said. It is unfortunate that the delay in the project courses development resulted in the cancelation of their piloting.</i> The dissemination phase is still in process, and Port Said, has stated they will use Face-to-face, online and traditional tools of communications.</p>			
72. Course Content*				<p>Course content is in line with CLIMASP ethos. Some overlap between courses. The core team currently consists of 3 out of 6 faculties. Also there are no core courses.</p>
Leading questions	<p>22) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>23) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>24) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>			
Assessment and suggestions	<p>1) The courses offered cover subjects within the 6 Faculties of Science, Medicine, Education, Engineering, Arts, and Commerce. Due to the large number of faculties offering courses to CLIMASP, the breadth of topics covered is impressive. Topics cover geography, resource management, psychology, anthropology, environmental sciences, human rights, architecture, regional planning, commerce medicine, medicine and the environment, law and policy, environmental impact assessment, air pollution, meteorology, soil pollution, energy, remote sensing, and water pollution. These greatly constitute effective crossing of disciplines, and provide unique courses that have so far not been offered by other universities, e.g. geography, architecture and the environment, medicine topics and the environment, and remote sensing. These will make for a very interesting CLIMASP minor at Port Said. <i>One issues is the lack of core courses in</i></p>			

	<p><i>the Case Study.</i></p> <p>2. The majority of the courses offered are sufficiently different to provide students with large choice in the electives. Because of the large number of courses offered (30 courses), there is also some overlap. This is mainly in the ‘environmental sciences’ topic offered by the faculty of Education (‘Environmental Sciences’), and the faculty of Science (‘Environmental Studies’ & ‘Basics of Environmental Sciences’). There is also commonality in the faculty of Science courses of ‘Energy and Environment’ and ‘Renewable Energies’. <i>It is recommended that the titles of these courses be changed to reflect different non-overlapping modules, or if they are very similar, then remove some courses.</i> Otherwise, a student taking the CLIMASP minor has good connectivity across departments/faculties.</p> <p>3) There are a large number of faculties involved in the design and development process. It is stated in the case study that many faculty members left, and that these are now being standardized as part of the Euro-Arab centre. It is unknown who these will be, but it is assumed that they will still be able to teach the 30 courses designed for CLIMASP. The current project team (from http://staff.psu.edu.eg/climasp) involve academics from the Faculty of Education (as Managers), Faculty of Engineering, Faculty of Science, and the Project Technical Assistant & Coordinator of Euro-Arab Center. This is reflected in courses offered at the implementation phase.</p>				
73. Core Courses*	Cannot find mention of the core courses in any of the documents.				
Leading questions	Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment suggestions	There is no mention of core courses. This is not in the Case Study, nor is it on the website (http://staff.psu.edu.eg/climasp) or (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Port-Said-University-CLIMASP-MINOR.pdf).				
74. Elective Courses*				Yes, electives are meaningful. Some overlap of courses, e.g. ‘Environmental Sciences/ Studies’ and ‘Energy/ Renewable Energies’	

Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?			
Assessment and suggestions	There are a large number of elective courses (around 30), offered across 6 faculties. As stated above, these courses are very diverse and successfully constitute interdisciplinary learning, matching the CLIMASP ethos. They also provide unique courses that have so far not been offered by other universities, e.g. geography, architecture and the environment, medicine topics and the environment, and remote sensing, as well as more mainstream courses such as energy, pollution, human right and ethics, environment and sociology, environmental impacts, law and policy. There is <i>some overlap between courses</i> , as stated in question 2. Furthermore, there are some modules that are general, such as macroeconomics, decision support systems, but on the whole the courses cover all relevant topics such as education, science, law and policy, economics and management, and sociology.			
75. Capstone Course*				Description of Capstone skills gained. 1) More explicit connection to stakeholders in the case study. 2) Will the capstone course be the same for all majors?
Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?			
Assessment and suggestions	Port Said does describes that the capstone courses ‘reflect the student’s acquisition of CLIMASP targeted knowledge, skills attributes and competencies’ (p. 9). The capstone course involves activities such as 1) reading, surveying, web surfing to gain knowledge on CLIMASP-related concepts, theories, processes; 2) engagement in field practices that develop skills of using self- and continuous learning Tools, methodologies, dynamic; 3) proving the acquisition of attributes such as: social responsibility, Justice, Intergenerational equity, Stewardship, Social & ecological justice; 4) reflection of their post course CLIMASP core competencies needed to Explore, Survey, Analyze, Compare, Assess, Identify, Evaluate CLIMASP issues, problems and concerns. This information provided is useful and meaningful. Yet, there is no further information on whether it will be different for students of different majors, or whether these should have direct links to stakeholders though volunteering and internships. <i>Please make this link with stakeholders more explicit in the Case Study.</i>			
76. Concentration				Good linkages to the concentration areas.

Areas				Some rearrangement of courses to relevant sections may be necessary	
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?				
Assessment and suggestions	<p>The courses on the whole are well placed into the three concentration areas. I only have a few suggestions. The 'Environment and Society' contains a duplicate course 'Environmental Studies' and 'Environmental Science', where the latter could be deleted or moved to the 'Science and Technology' concentration area. Furthermore, the course on 'Human Rights' (faculty of Education) should be moved to this section (from Economics and Public Policy concentration area).</p> <p>The 'Economics and Public Policy' concentration area contains appropriate courses. The Architecture courses of 'Architectural Design' and 'Lighting & Building Acoustics' may be better placed in the 'Technology' concentration area, but as I do not have the course description I will leave this to the discretion of PSU organisers.</p> <p>The 'Science and Technology' concentration area can contain very relevant courses. The Air, Water, and Soil Pollution Management courses may have a strong element of policy in them. Perhaps they belong in the 'Economics and Public Policy' concentration area. Also, is it possible to merge these three into one course dividing a single course (e.g. called Environmental Pollution Management) into these three important subsections?</p>				
77. Program Flexibility				As it stands all courses from the 6 faculties can be taken by all students from all majors. It is unknown, though which will be the main faculties involved.	
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own minor?				
Assessment and suggestions	There are a great number of courses created for the CLIMASP minors at PSU, and this will greatly benefit the students allowing challenging and interdisciplinary learning. Judging from Table 3 in page 7, all electives will be available to all students. This means that students taking an Education major can easily and successfully take elective courses in medicine, architecture, commerce, etc. It is still unknown what majors CLIMASP will be attached to. Is it all 6 faculties,				

	or just the faculties of Education, Arts, and Engineering? This needs to be made clear in the Case Study and to the future students.				
78. Credit Allocation			Credit allocation for the electives is confusion as they are weighted differently. The two course examples have different weeks of teaching.		
Leading questions	Is the workload appropriate for each course (credit allocation)?				
Assessment and suggestions	<p>The credits are given in table 3 on page 7, as well as online (http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Port-Said-University-CLIMASP-MINOR.pdf). The capstone course is 10ECTS, with the elective courses ranging from 3 ECTS to 5 ECTS. This is a little confusing. With the lack of core modules, there is more weight on the electives, and there is more weight on the Science and Technology concentration area electives occupying 20 credits, or 1/3 of all CLIMASP minor credits. This creates an unconventional mix of subjects students have to take. They will take 1 capstone course, but 12 electives. Of these 12 electives, 3x3ECTS courses will be taken in the 'Environment and Society' concentration area, 3x5ECTS and 1x3 ECTS courses will be taken in the 'Economics and Policy' concentration area, and 3x5ECTS courses will be taken in the 'Science and Technology concentration area. Why not try to equalize the credits taken for each concentration area, or make all electives have the same credits?</p> <p>In terms of workload, there are examples of courses provided by Michele Biasutti, i.e. Architectural Design/ Hydro-Geo-Chemistry and Environment. Both are 5ECTS, yet both are of different lengths, with Architectural Design running for 15 weeks, while Hydro-Geo- Chemistry and Environment runs for 13 weeks. The learning outcomes and the student participation is as expected, with focus on technology, innovation and design for the Architecture course, and learning outcomes of understanding environmental awareness, risk assessment, sustainable development, water resources, and legislation for the Science course. It is not known if the 3 ECTS courses have the same weight in assessment or in workload.</p>				
79. Skills and Assessment*					Yes, according to examples provided.

Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				
Assessment and suggestions	There are examples of courses provided by Michele Biasutti. Assessment .e. Architectural Design/ Hydro-Geo-Chemistry and Environment. Both are 5ECTS, and both have 80% of the grade relying on assignments, and 20% on Class attendance/ participation. Architectural Design has 9 assignments ranging from workshops, research studies, projects, sketches and a presentation. This is appropriate for an architecture course, and is diverse enough to allow students to be assessed in different manners. Hydro-Geo- Chemistry and Environment has 6 assessments ranging from essays to sampling reports, lab experiments, and presentations. The assessment modes for both modules seem appropriate.				
80. Student Experience*				Students have had the ability to feedback to the CLIMASP team. It is not known if students can continue to influence in the future.	
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?				
Assessment and suggestions	Even though Port Said did not undergo a pilot study, there was a focus on student feedback that has influence course design. Positive feedback was received after the analysis of post course questionnaire results. While students expressed their dissatisfaction with other courses because they tend to follow a teacher-centred teaching style, students showed positive signs through in-class involvement and active participation in the modular courses. Also students' declared that the new course format encouraged them to be involved in extra-curricular/community-based activities. Furthermore, classroom discussions indicated the students' increasing awareness, motivation and concern towards various environmental issues; not only climate changes. These factors demonstrate that students at Port Said have had the ability to feedback to the CLIMASP organisers, and have influenced the courses. It is expected, although not explicitly stated, that future years will also take student feedback into account.				

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

LEBANESE AMERICAN UNIVERSITY

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
81. Program Objectives & Outcomes					YES all relevant information is there, covering all the program objectives.
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	<p>Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners.</p> <p>LAU has stated that they attended the National and Regional Training Workshops and that the development and implementation of CLIMASP was considered a successful and in line with the university's commitment to introducing 'green curricula to meet the university culture that promotes environmental sustainability' (p. 3 of case study). LAU also states that in order to ensure quality assurances of the minor, an Online Community of Practice (OCOP) exists to provide an interactive environment for its members to exchange, discuss and share ideas, suggestions, solutions, tools and methodologies focusing on the core areas. This serves as a repository online environment to support capacity-building initiatives and revise courses towards meeting objectives (p. 20). The ICT lab at LAU is still in progress, and they state that the labs may be equipped with Web Server, Camera equipment, teleconferencing, Video displays, Whiteboard equipment, Monitors, Projector, routers, furniture, 20 to 25 Personal Computers, Laser Printer + Scanner, and software</p>				

such as GIS and other GEO/Spatial tools.

Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMATE change and Sustainability Policy (CLIMASP) in each partner country university.

LAU have received much support from their own administration during proposal submission, planning, kickoff, development, and implementation. In addition, a Coordinator was assigned at LAU to handle the management activities and a steering committee composed of 6 faculty members with over 17 faculty members involved. Support staff include administrative assistant, Budget Office staff, among many others where coordination is ongoing. This shows commitment of faculty and institution to the success of CLIMASP (p.2). The faculties involved include the Adnan Kassar School of Business (AKSOB), School of Architecture and Design (SArD), School of Arts and Science (SAS), and the School of Engineering (SOE). Furthermore, LAU has integrated stakeholder involvement at the capacity-building workshops, at the implementation phase, at the evaluation, and even at the dissemination phase. This was to capturing stakeholders' expectations, competences needed, and validating/accrediting course modules. Stakeholders include members of civic society, Ministry of Environment, Lebanese order of Engineers and Architects, and the AU of Beirut.

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

The CLIMASP minor programme at LAU (and NDU) is administered by the Euro-Arab Center for Interdisciplinary Studies. There is a very clear from section 4.4 (pages 6-10) that describes the CLIMASP minor requirements and which existing undergraduate degrees CLIMASP can be linked to it. The case study document also demonstrates the implementation phase student numbers and results from the Spring 2016 implementation phase (pages 10-19). Results from the implementation phase suggest a growing awareness of climate change impacts, and all students enrolled passed the subjects. *Note that graphs on page 16 and 19 do not have axes titles.* The faculties involved; Business, Architecture and Design, Arts and Science, and Engineering cross the broad disciplines of applied sciences, technical sciences, and economics/business sciences. There is 1 course offered by the department of Education. *Also there is no clear department covering social sciences, but there are courses that are orientated towards this.*

Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution.

There is a detailed section on monitoring and evaluation of CLIMASP courses at LAU (pages 20-21). There is excellent feedback from external reviewers that can be viewed on pages 22-23. Dissemination activities are described in section 6 and include open discussion forums, brochures, leaflets, and a very good document about CLIMASP at LAU @ <http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Lebanese-American-University-CLIMASP-MINOR.pdf>. *Explanation of the design, development, pilot, implementation, review phases could have been a little more*

	<i>systematic in the case study, although the information is there.</i>			
82. Course Content*				Yes, the overall course structure and content is in line with the CLIMASP objectives. All central disciplines are covered, e.g. social sciences. Education sciences is also included, but with only 1 course.
Leading questions	<p>25) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>26) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>27) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>			
Assessment and suggestions	<p>1) Thirty-seven courses are offered for the CLIMASP minor consisting of three core courses, a capstone course, and 33 electives, delivered across the 4 faculties. Courses are also found at: http://www.ictinesd.org/unescochair/climasp/wp-content/uploads/2014/04/Lebanese-American-University-CLIMASP-MINOR.pdf. The courses offered cross multiple disciplines including business/economics sciences (Environmental, Resource and Energy Economics/Development Economics/Sustainable Development), social sciences (Social Aspects of Renewable Energy for Rural Development/Civil Engineering Profession), applied and technical sciences (Sustainability in Practice/Renewable Energy/Water and Treatment/Environmental Engineering/Pollution/Irrigation/GIS and Remote Sensing), and education sciences (Curriculum Design). LAU has done a good job to fuse courses with appropriate names, with some course names explicitly including ‘climate change’, ‘sustainability’, and ‘policy’.</p> <p>2) Many of the courses offered are important to provide students with a large choice across all faculties involved. The effort to include social science topics even with no social science department is commendable, and successfully described on pages 32-33 of the case study document. There are a good number of courses which are directly relevant to increasing Lebanese students’ understanding of the extent of pollution and developing means to manage the pollution, sustainable</p>			

	<p>environmental practices and further reduce the degradation of existing natural capital. LAU has also done a good job at avoiding courses which are too similar. Some, e.g. water treatment are similar in name, but the descriptions clearly set them apart.</p> <p>3) There are 4 faculties and 6 departments involved in the development and delivery of the courses, as well as the Spring 2016 implementation phase. Some faculties and departments clearly teach more into CLIMASP than others. Civil Engineering and Natural Sciences teach more than 12 each, and the remaining 4 departments teach 1-3 courses each. Perhaps an increase in the weight of each faculty/department will ensure long-term participation in CLIMASP. Yet, there seems to be a good administrative structure and support for CLIMASP at LAU meaning that faculties will likely remain.</p>			
83. Core Courses*				<p>Core courses are reasonable and fall within the 3 CLIMASP areas. Perhaps there's need for a clearer description of the 'science' and the 'social' course.</p>
Leading questions	<p>Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?</p>			
Assessment suggestions	<p>The 3 core courses are from the faculties of Engineering; 'Environmental Impacts Assessment', Business; 'Environmental, Resource and Energy Economics', and Arts and Science; 'Sustainability in Practice'. Descriptions of these and all other courses are offered in the case study document. 'Environmental Impacts Assessment' studies the effects of large scale projects on physical, biological, but also socio-economics environments, and the sustainability guidelines that could be used to mitigate further destruction. 'Environmental, Resource and Energy Economics' relates to environmental policymaking and the policy issue debates concerning resources and energy. 'Sustainability in Practice' studies human actions to handle global change in climate, ecosystems and resources. These courses are defined as belonging to the distinct CLIMASP concentration areas. The reviewer agrees, although 'Sustainability in Practice' may touch on both <i>Society</i> and <i>Technology</i>. <i>It might be good to clarify the scientific component of this course, even if it is offered by the department of Natural Sciences.</i></p>			
84. Elective Courses*			<p>Yes electives are meaningful and coherent. In the future LAU could expand its education sciences</p>	

				topics, and could expand the courses offered by 2 out of 4 faculties (SAS and AKSOB).	
Leading questions	Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?				
Assessment and suggestions	There are 33 electives offered across 4 faculties. These courses are diverse and successfully constitute interdisciplinary learning, matching the CLIMASP ethos. Descriptions of these courses are offered in the case study document. There is a good mix topics and ones related to prominent environmental issues in Lebanon, e.g. biodiversity risks, land use change and deforestation, renewable energy, water and air pollution, water treatment, civil engineering challenges and geo-engineering, ocean environments, energy in building, sustainable transport, irrigation, and remote sensing. These are all highly relevant to CLIMASP and will be of great interest to students. This means that students from any of the major degrees within the four faculties will be able to build a coherent and meaningful degree. There is the small danger that students from Business (AKSOB) and Architecture (SArD) will find it difficult to follow some of the Natural Science topics (SAS). Yet, the spread of course topics and the descriptions provided show that all students will be accommodated for.				
85. Capstone Course*					Yes, the capstones are based on practical and critical learning, incorporating fieldwork and internships. It is not clear if non-academic stakeholder links will be used.
Leading questions	Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?				
Assessment and suggestions	The capstone course is described mainly on pages 25-26, and can be a combination of an internship and independent study. This course covers a selected project using technical knowledge, formal report, and presentation. This course provides students with a design experience that is as close as possible to real life projects, including coming up with the idea, synthesising knowledge and data, work closely with experts in the field of study; and providing advance				

	<p>professional recommendations and solutions for implementation of climate change and sustainability policy. Internships could help the student broaden their horizons beyond academia and interact with national or private stakeholders. <i>It is not made explicitly clear of this internship will be using stakeholder links.</i></p>				
86. Concentration Areas			<p>Current courses are in line with the concentration areas. LAU needs to work in including a larger range of social, economic, and educational topics. It is currently heavily focused on Science and Technology.</p>		
Leading questions	<p>To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?</p>				
Assessment and suggestions	<p>The concentration areas are on the whole appropriate. The 'Environment and Society' concentration area contains appropriate modules even if there is no social science department connected to CLIMASP at LAU. Here, only 'Climate Change Risks to Ecosystem and Biodiversity' seems to be misplaced. The only social aspect in its description is the inclusion of <i>social science methods</i> to predict climate change. The social science aspect of this course needs to be made clear. The 'Economy and Policy' concentration area contains appropriate courses. The 'Science and Technology' concentration area contains courses that are also well placed. <i>There is the danger of an oversubscribing of 'Science and Technology' topics. There are 26 in this concentration area, and 5-6 in the other two each. LAU needs to work in including a larger range of social, economic, and educational topics.</i></p>				
87. Program Flexibility					<p>Good course flexibility for students to build their own minor. Also there is a unique non Euro-Arab pass pathway students can take if they chose to not take the capstone course.</p>
Leading questions	<p>Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own</p>				

	minor?				
Assessment and suggestions	Students from the Adnan Kassar School of Business (AKSOB), School of Architecture and Design (SArD), School of Arts and Science (SAS), and the School of Engineering (SOE) may choose to enroll in the CLIMASP minor. Most Minor courses do not require any pre-requisites that could limit enrolment of students, increasing student choice and flexibility in building their own minor. Students also uniquely have the flexibility to achieve a fully accredited Euro-Arab pass diploma with 27 credits, or a simpler minor pathway with only 18 credits (without the capstone course). LAU also defines students must take one elective from each concentration area.				
88. Credit Allocation				Credit allocation for all CLIMASP courses appears fine. Also statements on capstone course credits are confusing.	
Leading questions	Is the workload appropriate for each course (credit allocation)?				
Assessment and suggestions	The CLIMASP minor at LAU contains 45-60 ECTS, of which capstone is 15 ECTS, core courses are 5 ECTS, and electives are 5 ECTS. This results in 15/15/15 from the core, capstone and elective courses respectively. There are 2 electives which are 2 ECTS (Environmental Engineering-SOFT) and 3 ECTS (Civil Engineering Profession). Either delete these or amend the credits. <i>There is a confusing statement in section 4.4 page 6 stating 'As for the capstone and internship (15 ECTS or 9 credits), the student is expected to pay for 3 credits for the capstone and 1 credit for the internship'.</i> Also how can a student go up to 60 ECTS? Is this not encouraged? It is made clear on page 25 the costs of CLIMASP with the 3 additional courses that are needed. Increasing CLIMASP to 60 ECTS would require \$2100 per student.				
89. Skills and Assessment*					Yes, from the example provided. Perhaps change the capstone course assessment weightings.
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				
Assessment and suggestions	The case study document indicates that assessment is based on Coursework, exams, homework, presentations, projects, among others. There are examples of courses provided by Michele Biasutti, i.e. 'Conserving Biodiversity in a Changing Climate' & 'Curriculum Design'. The assessments are based on exams (90%) for Conserving Biodiversity in a Changing				

	Climate, and various projects (100%) on curriculum design and development. The capstone course assessment is also offered in the case study document (p. 26), and is made up to the project proposal (10%), the interim report (30%), the final report (30%), and the presentation (30%). <i>The reviewer suggests combining the interim and final report into 1, so that students have more of an incentive to produce a quality final report. Otherwise, decrease the weight of the interim report.</i>				
90. Student Experience*					Student learning and experience is clearly valued and defined at LAU. Due to administration difficulties it is not clear if student feedback can alter courses.
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?				
Assessment and suggestions	CLIMASP at LAU offers students a unique inter/multidisciplinary understanding of climate change which can shape a student's path opening up career opportunities, and provide students with hands-on experience (p. 5). At the completion of CLIMASP, students will be able to use applied mathematics, science, and economics, etc. to solve climate change and sustainability policy problems. They will also be able to analyse technical data and integrate problem solving in professional, ethical, social, and environmental environments. They will keep abreast of contemporary issues and develop the ability to communicate effectively. These are crucial outcomes that can enhance student learning and student experience. There have been challenges (p. 33) during the development/ implementation phase related to ensuring efficient involvement and commitment at the administrative level of the institution and expediting bureaucratic procedures especially when introducing new courses (lengthy process of approval). This may mean that <i>year-to-year changes by students is currently not possible.</i>				

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

NOTRE DAME UNIVERSITY LEBANON

Progress stage Element	1. Not meeting expectations	2. Approaching expectations	3. Progress being made	4. Meeting expectations	5. Fully meeting expectations
91. Program Objectives & Outcomes					YES, very good reporting! NDU recognises potential future involvement of education and pure social science faculties. Reporting of pilot study?
Leading questions	To what extent there is an alignment of the CLIMASP minor curriculum structure with the CLIMASP program key objectives and expected outcomes?				
Assessment and suggestions	<p>Obj 1) Develop capacity-building programmes to train university teaching staff and key administrators for interdisciplinary collaboration and building partnerships with local/regional and national partners.</p> <p>Notre Dame University was involved in three national meetings and two regional training workshops at three crucial stages of the project; design (p. 8), development (p.12), pilot (p. 12), and evaluation. The workshops aimed to promote the interdisciplinary nature of climate change through involvement of all project partners, through the involvement of stakeholders, and to monitor progress including appropriate and timely feedback; whole-institution approach to sustainability; use of assessment surveys; number of the teaching staff trained; number of syllabi developed and implemented, etc.(p. 12). The Computer Labs (ICT) is defined on page 23 section V-4, but <i>details of computer numbers or software are not given</i>, as some of these are in progress. The ICT lab will be the driver force for the institutionalization of the CLIMASP program and at the same time play a key role in promoting interdisciplinary teaching, learning and curricula. Key training needs suggested by stakeholders is very well defined on page 11 to</p>				

influence the choice of courses offered by NDU. Finally, NDU recognises and takes on board the five key learning processes and outcomes defined on pages 14-15, including energising students in the 21st Century, applying problem-based-learning, valuing climate change and sustainability, learning how to adapt to knowledge, and merge theory with practice.

Obj 2) Involve university staff and other key stakeholders (e.g., students, professionals) in the development of an undergraduate interdisciplinary programme in CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university.

There is evidence that multiple faculties and stakeholders are involved in the development of CLIMASP minors. The stakeholder involvement is very clearly defined step-by-step in the case study on pages 9-11, including initial questions discussed, identifying societal needs in relation to climate change, offering and analysing the questionnaires, identifying priorities in teaching of CLIMASP issues, and guiding the individual courses to be offered. NDU also crucially states, that the connection between administrators and stakeholders is ongoing giving insights into the future of CLIMASP (section V-8). The stakeholders are defined as Ministry of Environment of Lebanon/ UNDP, Lebanese Agricultural Research Institute (LARI); civil society groups e.g. the Civic Influence Hub, as well as NGOs, students, and other associations that have environmental and socio-economic interests (p. 8). On Page 16, it is clearly stated which faculties are involved in CLIMASP; Faculty of Business Administration and Economics, Faculty of Natural and Applied Sciences, Faculty of Engineering, and Faculty of Law and Political Science.

Obj 3) Integrate and implement the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines such as education sciences, applied sciences, technical sciences, economics/business sciences, and social sciences.

NDU describes the implementation phase of CLIMASP carried out in the academic year of 2014-2015 (p. 12-13). They describe that 15 courses were implemented at this stage. Perceptions of the course were tested using a survey questionnaire of the Likert-type scale. NDU demonstrates and describes CLIMASP as an integral part of existing undergraduate academic degrees. They define that the curriculum of the minor is designed to provide undergraduate students from *different majors* the flexibility to select courses to enhance their interests in climate change and to enrich their major field of study with professional skills in climate change adaptation policies and planning (p. 13). Accreditation of the CLIMASP minors will be through the Euro-Arab Centre for Interdisciplinary Studies and Climate Change. *CLIMASP at NDU does not cross all disciplines provided in Objective 3*, but covers the applied and technical sciences (F. of Natural and Applied Sciences / Engineering), economics/business sciences (F. of Business Administration and Economics), social sciences (F. of Law and Political Science). Education and pure social science is not covered by NDU. Yet, NDU recognises this, and going forward they seek opportunities to better integrate CLIMAPS with other faculties and departments (p. 24).

	<p>Obj 4) Monitor, Evaluate and Review the CLIMASP programme in each partner country institution. The processes of programme design (p. 8-11), development (p. 11-12), piloting (p.12), implementation (p.12-13), evaluation and review (p. 13), and challenges face (p. 27-28) are very clearly defined. Dissemination activities also clearly listed on page 28-29 (section V-8). Results from the pilot phase could be included in the case study.</p>				
92. Course Content*				<p>Yes, the course structure and content is in line with the CLIMASP objectives and deliver meaningful knowledge. Only 1 clear social science course, with heavier weight on business and economics.</p>	
Leading questions	<p>28) Do the courses effectively cross subject disciplines (horizontal/vertical integration), delivering meaningful and holistic knowledge?</p> <p>29) Do the CLIMASP minor courses make connections across the participating academic disciplines?</p> <p>30) Do the individual departments/subject areas contribute to the development and delivery of learning in a meaningful, holistic manner?</p>				
Assessment and suggestions	<p>1) The courses offered cross 9 disciplines (departments) of Environmental Sciences, Management and Marketing, Government and International Relations, Accounting Finance and Economics, Hospitality and Tourism, Law, Sciences, Civil and Environmental Engineering, and Mechanical Engineering. These are within the 4 faculties stated in question 1. The courses offered are well described in the case study, and deliver meaningful knowledge within the CLIMASP topics. Of note is the core module ‘Environment Society and Ethics’, ‘Environmental Law’, ‘Environmental Remote Sensing’, and ‘Climate Change Economics’ which are unique and will provide students with a meaningful knowledge to tackle issues in climate and sustainability. As stated in question 1, there is a lack of educational and social science faculties and courses. This has been recognised by the CLIMASP management team at NDU. Only the core course of ‘Environment Society and Ethics’ deals explicitly with society.</p> <p>2) The core, elective and capstone courses offered are unique enough to constitute diverse interdisciplinary learning</p>				

	<p>without much overlap. Furthermore, it is good to see that there are only a few general modules such as ‘Managerial Economics’, ‘Introduction to Political Science’, and perhaps ‘Public International Law’. In the descriptions on pages 19-21, it would be good to make clear links of these courses to CLIMASP.</p> <p>3) Yes, individual departments are involved in delivering knowledge, and all 9 departments teach at least 1 course, with each faculty teaching 4-8 courses. This demonstrates commitment from individual faculties and faculty members. There is a heavier commitment of the Faculty of Business Administration and Economics, but as other CLIMASP universities, this may be due to where the principle management team is placed.</p>			
93. Core Courses*				<p>Yes, core courses are coherent and necessary in the multidisciplinary nature of CLIMASP, covering all 3 concentration areas.</p>
Leading questions	<p>Do the core courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?</p>			
Assessment suggestions	<p>The 3 core courses offered cross two faculties, but are clearly linked with the three CLIMASP concentration areas. These are ‘Introduction to Environmental Science’ offered by FNAS, which introduces global problems facing the earth’s environment; ‘Environment, Society, and Ethics’ offered by FNAS, which covers societal connections to the environment such as quality of life, ethics, societal evolution, and sustainability principles; and ‘Ethics in Business’ offered by FBAE, which covers the philosophical and ethical dimension of the business world. These perfectly fit the 3 CLIMASP concentration areas, and are appropriate core courses for any student coming from any major.</p>			
94. Elective Courses*				<p>Yes, elective courses are coherent and meaningful. 1) No social science electives 2) 3-4 courses do not link with CLIMASP ideas directly</p>
Leading questions	<p>Do the elective courses make sense in terms of coherence and meaning taking into consideration the disciplinary backgrounds of students from the participating faculties?</p>			
Assessment and	<p>NDU has 21 electives covering all four faculties, with most delivered by FBAE. Most courses fit within the disciplines</p>			

<p>suggestions</p>	<p>of Climate Change, Sustainability and Policy. On the whole the electives cover renewable energy, pollution, spatial analysis, engineering, plant ecology and physiology, international and environmental law, sustainable policy, natural resources, management, globalisation, and tourism. These are all very appropriate and reflect needs and desires for the host country Lebanon. Perhaps, knowing the affinity of Lebanese to their forests, they could incorporate a component of forest ecology and/or land cover change. Yet, this could be discussed within 'Environmental Remote Sensing' or 'Ecology' or 'Plant Physiology' amongst other economic or social topics. All course descriptions are coherent, and are multi and interdisciplinary (p. 18-20). It has been stated before concerning the lack of social science topics and educational topics in the electives. NDU should work in the future to incorporate faculty members from these schools. Also, as stated in question 2, there are a few courses which do not seem to make a direct link to CLIMASP (e.g. Managerial Economics, Introduction to Political Science, Public International Law), but can be important to future lawyers and economists with an enhanced Environmental awareness.</p>				
<p>95. Capstone Course*</p>					<p>Yes, good focus on student practical knowledge learned, develop critical thinking beyond theory, and get involved with outside bodies through an internship.</p>
<p>Leading questions</p>	<p>Does the capstone courses provide practical experiences (merging theory and practice) as well as community-based learning opportunities (service learning)?</p>				
<p>Assessment and suggestions</p>	<p>The capstone course is very clearly defined and described in the case study document (p.21-22). The capstone provides the necessary background and research experience to students planning to work in national and regional environmental management initiatives and ventures or pursue graduate degrees and indulge in scientific research. The capstone course enables students to apply and synthesize the material learned in other courses, develop expertise on a specific topic related to the student concentration; work closely with experts in the field of study; and advance professional recommendations and solutions for implementation of climate change and sustainability policy (p.21). NDU also defines a link with stakeholders, and 30% of their grade goes to the successful completion of an internship. NDU's capstone description is the best and most complete currently.</p>				
<p>96. Concentration Areas</p>			<p>Known lack of Society and Education courses evident in the</p>		

			'Environment and Society' concentration area. Others are great.		
Leading questions	To which extend the courses listed in each concentration area are matching with the concepts of the concerned concentration area?				
Assessment and suggestions	<p>NDU follows the 3 CLIMASP concentration areas of Environment & Society, Economics & Public Policy, and Science & Technology. These are well laid out in the case study on pages 17-21. All courses in the Economics & Public Policy, and Science & Technology concentration areas are great. As a recurring theme in this evaluation, which NDU recognises, is the lack of social and education courses. This becomes apparent in the Environment & Society concentration area. Here, 'Elements of Globalisation' and 'Domestic Travel and Tourism Development' have a tenuous link to 'Environment & Society', but 'Economics of Developing Countries', 'Operations Management' and 'Fiscal Policies of Lebanon' do not clearly represent the concentration area. Make this clear in the course descriptions.</p>				
97. Program Flexibility					Yes, students will clearly be able to build their own minor.
Leading questions	Do core and elective courses offer flexibility for students from participating disciplines/faculties to build their own minor?				
Assessment and suggestions	<p>Yes, it is clear that the number and breadth of electives, and the freedom of the capstone course allows students to build their own minor according to their passions. This is explicitly stated on page 13: "The curriculum of the minor is designed to provide undergraduate students from different majors the flexibility to select courses to enhance their interests in climate change and to enrich their major field of study with professional skills in climate change adaptation policies and planning. Furthermore, defined on page 16:</p> <p>"Students are required to take 3 core courses from the 1st Concentration Area (CA). Such courses should be oriented to social, environmental, economic and cultural aspects of climate change. Students from the 1st CA have to take at least 2 courses from the 2nd CA and 2 courses from the 3rd CA, according to their preferences (electives). The capstone course will be equivalent of 15 ECTS (9 credits) that will focus on an independent study/internship. Students will choose the concentration area upon which they want to work for an independent study/internship that merges theory with praxis, applying problem-based learning and service learning methodologies."</p>				
98. Credit Allocation				Yes. Perhaps there needs to be one less elective making the	

				total allocation 60 ECTS.	
Leading questions	Is the workload appropriate for each course (credit allocation)?				
Assessment and suggestions	<p>The credit load is defined in the case study on pages 15-17. It is also stated how many electives a student can do and from which concentration area. The 3 core courses are 15 ECTS in total, the capstone course is 15 ECTS, and the electives count for 35 ECTS. This makes a total of 65 ECTS. It is recommended that this changes to 2 courses from each concentration area totalling 30 ECTS for the electives, and 60 ECTS for the minor.</p> <p>In terms of workload, there are examples of courses provided by Michele Biasutti, i.e. Business Ethics / Climate Change Economics and Sustainability Policy / Environmental and Resource Economics / Managerial Economics. Descriptions of these courses are very detailed. The workload of each looks equivalent, as they are the same weight in terms of ECTS, and with eight central topics being taught.</p>				
99. Skills and Assessment*					Yes, from the example provided.
Leading questions	Are the assessment methods appropriate for the workload, and do they demonstrate key skills obtained with interdisciplinary learning?				
Assessment and suggestions	<p>In terms of assessment, there are examples of courses provided by Michele Biasutti, i.e. Business Ethics / Climate Change Economics and Sustainability Policy / Environmental and Resource Economics / Managerial Economics. Depending on courses, assessments include exams (55-65%), class participation (5-10%), group projects and essays (15-20%), quizzes (0-10%), presentations (0-10%), and uniquely, the presentation of current events/articles collection and analysis (10% for Environmental and Resource Economics). These are appropriate, original, and diverse so that students are not stressed by one single assessment, and can challenge and develop a student's interdisciplinary learning depending on the course.</p>				
100. Student Experience*					Courses were created with the help of student feedback (pilot/ implementation), and also recognise student experience as paramount

					during and after the CLIMASP minor. Do not know if future year to year changes can happen within NDU's framework.
Leading questions	Are the core and elective courses coherent considering the disciplinary background of students and teachers? Do courses offer student feedback and course changes from year to year? Do courses offer enough flexibility to build students' own minor degree?				
Assessment and suggestions	<p>NDU describes the benefit of CLIMASP for students stating they will open significant career opportunities to student in any discipline, provide student with more hands-on experiences, could help student shape the future path, enrich the student's major study programmes, and add depth and breadth to student's course of study. NDU further states advantages CLIMASP graduates will play a leading role in climate change discussions and solution implementations in their chosen professions (p. 14), and also forcing them to become inquirers, problem solvers, critical and creative thinkers. On page 23, NDU discusses education experience:</p> <p>“Educational experiences are more authentic and of greater value to students when the curricula reflects real life, which is multi-faceted rather than being compartmentalized into neat subject-matter packages. In their view, real-world problems are complex, so no single discipline can adequately describe and resolve these issues. Inter-disciplinary analysis examines an issue from multiple perspectives, leading to a systematic effort to integrate the alternative perspectives into a unified or coherent framework of analysis.... This method of teaching links curriculum strands and capitalizes on student's interests and life experiences, young people's attitudes, skills and knowledge are developed in meaningful ways.”</p> <p>NDU, as with other institutions, has sought and incorporated feedback and changes to courses both internally and externally. They also recognise problems in including some faculties, which may increasing the academic flexibility of elective and core courses available to students. It is not stated whether courses will change in the future from year to year, but student feedback has been sought at the pilot and implementation phase.</p>				

*These elements will be assessed in cooperation with Prof. Michele Biasutti, another external evaluator (University of Padova) who has knowledge on all course syllabi/modules.

October 27th 2015 Evaluator: Dr. Carmel Mulcahy Dublin City University Dublin, Ireland

Submitted to: Professor Vassilios Makrakis. Project Co-Coordinator

Specific Evaluation Brief

For the purposes of this evaluation, the final outcome as outlined above was the main focus. However, the other key objectives of CLIMASP as well as the CLIMASP Toolkit devised for this project were also kept in mind while reviewing the course modules that were presented to me by the partner institutions.

Courses

The following courses were reviewed in the order they were received.

University of Notre Dame: 20
2. Lebanese American University: 22
Heliopolis University: 11
Hashemite University: 8
American University of Madaba: 19
University of Suez Canal : 19 (two not valid)
University of Port Said: 30
Jerash University: 24
Aswan University: 29

A request to review courses from The University of Jordan was received on 18th October after the evaluation had been completed.

Faculties represented

The courses under review represented a wide range of disciplines across the universities. There was no single predominant discipline, though the Social Sciences and Education were strongly in evidence. The disciplines included :

Architecture
Art
Business Studies
Citizenship
Communications
Computing
Curriculum Design
Development Studies
Economics
Education
Engineering
Environment
Ethics
Film Studies

Geology
Geography
Law
Mathematics
Planning
Project Management
Psychology
Research
Sciences
Social Science
Transport Management

CLIMASP Competences

A number of courses successfully integrated the CLIMASP competences however some factors did emerge during the process. From an institutional perspective, it was evident that universities, which had worked on previous TEMPUS projects, such as the RUCAS project, presented the least difficulties in negotiating the complex process of re-orienting curricula using the CLIMASP approach. However, it should be noted that a number of the newer institutions were also quite successful in the process. Individual disciplines such as Architecture, Ethics, Citizenship and Economics were very successful in adapting their courses to the CLIMASP approach and there was evidence in a small number of institutions that Law Faculties were also very successful in their approaches.

Methodologies did not complement the CLIMASP approach.

- The biggest single problem encountered was the placing of the CLIMASP concept as a single add- on element with no evidence of integration at any level.
- Learning Outcomes were clearly articulated but in a lot of cases there was very little evidence that the Learning Outcomes could be or were achieved.
- These courses also highlighted the problem of losing sight of the core discipline in trying to adapt to CLIMASP.

All courses reviewed, with very few exceptions would benefit from a more problem based, experiential approach to programme design, delivery and assessment processes. Student engagement in course design and/or evaluation is not in evidence across most of the courses. There is an opportunity being lost to engage students as responsible, responsive citizens and future professionals in their fields. The learning that is being lost as a result of this needs to be addressed in the next stages of the CLIMASP process.

I have recommended in a number of instances that Faculties should work more closely to ensure quality and consistency across their CLIMASP courses. There is also strong evidence of overlap across a number of course and this has been highlighted in the feedback given to the individual universities. A high percentage of the courses had not developed their reading lists to represent the CLIMASP integration.

External Rubric

The pre-designed External Rubric was used to evaluate the courses. While generally this rubric did provide a good basis for conducting the evaluation, the final question relating to

the student competences proved quite problematic without access to student feedback or evidence of their assessments. A small number of courses achieved a number of Level 4 results but this was in the region of 5% or less. Where this level was reached it was evident that there was a strong theoretical grounding in the main subject field, a highly developed understanding of the CLIMASP approach, an excellent appreciation of the entire curriculum cycle and a good balance across the disciplines.

Question 1

Does the work include selected concepts and methods from two or more disciplinary traditions relevant to the purpose of the work?

This aspect was most successful when the course designer had a strong understanding of their own discipline and had engaged in a meaningful study of the theory and practices that underpin the CLIMASP approach. The attempts to integrate CLIMASP resulted in many instances in a diminution of the main discipline. Course designers should look at examples of best practice in their own institutions and across the CLIMASP community. The Rubric could also be used to assist in this by providing a clear guide for the course designers.

Question 2

Is there an integrative device or strategy (e.g., a model, metaphor, or analogy)?

This was in evidence in a number of the courses reviewed. Where it was successfully adopted, this led to a higher score overall on the 4 Level scale. I attempted to provide a metaphor as far as possible and also the rationale for the use of such a metaphor. I recommend that further work needs to be conducted in this area in order to provide support for the course designer. When used properly, this device is an excellent support in keeping all of the elements of a curriculum in focus.

Question 3

Is there a sense of balance with regard to how disciplinary perspectives are brought together to advance the purpose of the work?

There was a clear link between this question and the preceding ones outlined above. Where the integration was not clear and the metaphor not developed, it was impossible to achieve a high score in this area. There was a tendency to slot in the CLIMASP approach as a single element in the Learning Outcomes and in many instances it was not in evidence in any of the course modules. This area also needs further work among the institutions. The majority scored on the Apprentice level in this element.

Question 4

Do the conclusions drawn from the work indicate that understanding has been advanced by the integration of disciplinary views?

This question related closely to the entire Curriculum Cycle. The highest ratings were achieved by those course designers who had given careful consideration to the pedagogical

approach, the methodologies employed, the types of assessment used, the engagement of the student in an experiential manner where they were encouraged to relate theory to future professional practice and where Higher Order Questioning and thinking Skills were encouraged. A disappointing number of courses reviewed did not appear to place the student at the centre of the Curriculum, nor did they engage them in creative and problem solving approaches. I would recommend that Course Exemplars be used to provide support for future revisions and curriculum development.

Question 5

Does the student exhibit awareness of the limitations and benefits of the contributing disciplines?

As already outlined, this proved difficult to evaluate without any access to student feedback, evaluations, pre and post- course reactions and interim and final assessments. It is advised that the rubric be used by the course designers to support them in this aspect of the course design. Student engagement is essential, if CLIMASP is to reach optimum effectiveness..

Conclusions

Overall, I have found major variations in standard across the 180+ courses reviewed. While there was some excellent and exciting work I have found evidence of work that has been put together quickly and with no real thought to integration. This may be due to time constraints or to a lack of understanding of what is required. Some of the work presented is of a very high standard and should be disseminated on a wider level either through conference of paper presentations and/ or publication. The work in general has the potential to impact change at policy level and should be publicised nationally in the media and presented to the policy makers at local and national level.

I would recommend that a number of Courses be selected as Exemplars across all disciplines. In particular Exemplars on Ethics, Citizenship, Climatology and Sustainability should be developed as core courses across all of the undergraduate courses in the partner universities.

Greater emphasis should be placed on engaging students in course design, assessment and pre and post evaluation of the impact of CLIMASP on their academic lives. A longitudinal study of the graduates over a 5- year period in their professional lives could be very beneficial. Peer support and evaluation of courses both within and across the partner institutions is recommended.

CLIMASP External Second Assessment for Interdisciplinary Learning

October 30th 2016

Evaluator: Prof. Michele Biasutti PhD. Padova University of Padova, Italy

Introduction

Specific evaluation brief

For the purposes of this second evaluation, the final outcome and the improvement of the syllabi were the main focus. The assessment was undertaken using the pre-designed CLIMASP External Assessment Rubric for Interdisciplinary Learning (see Appendix 1) and first evaluator's comments and suggestions. This assessment rubric consisted of 5 specific

areas evaluated by using a scale ranging from 1 =Naïve, through to 2=Novice, 3=Apprentice and 4=Master levels. The assessment was based on the following five important areas:

- Does the work include selected concepts and methods from two or more disciplinary traditions relevant to the purpose of the work?
- Is there an integrative device or strategy (e.g., a model, metaphor, or analogy)?
- Is there a sense of balance with regard to how disciplinary perspectives are brought together to advance the purpose of the work?
- Do the conclusions drawn from the work indicate that understanding has been advanced by the integration of disciplinary views?
- Does the student exhibit awareness of the limitations and benefits of the contributing disciplines?

In order to verify the changes among the rubrics syllabi and the revised syllabi, the original syllabi were compared with the revised syllabi. To complete these comparisons an excel databases of first syllabi, reviewed syllabi, first rubrics and last rubric were created. The databases were organized per partner universities. If the revisions were significant, an higher level was assigned. The syllabi with the highest score (Level 4) showed a strong theoretical grounding in the main subject field, a highly developed understanding of the CLIMASP approach, an excellent appreciation of the entire curriculum cycle and a good balance across the disciplines. In that case, they don't need further modifications. The best syllabi were collected and selected for the development of a booklet to share the best practices.

Courses

A total number of 216 syllabi were submitted for the assessment by partner universities as follows:

University of Notre Dame: 24
American University of Madaba: 17
Jerash University: 24
Lebanese American University: 32
Hashemite University: 15
Heliopolis University: 11
University of Suez Canal : 17
University of Port Said: 29
Aswan University: 26
University of Jordan: 21

32 syllabi didn't have participated to the first assessment for late arrival or other problems, so the evaluator provided to complete the missing rubrics for these syllabi. After the first evaluator's assessment developed using the rubric, the courses instructors were asked to revise the syllabi in according to the comments of first evaluator. The courses were sorted per University and they were evaluated following the order they were received.

Faculties represented

Many disciplines were represented in the courses reviewed across the universities. Even if the Social Science and Education were more visible, there were major disciplines included as follows:

Architecture
Art
Business Studies
Citizenship
Communications
Computing
Curriculum Design
Development Studies
Economics
Education
Engineering
Environment
Ethics
Film Studies
Geology
Geography
Law
Mathematics
Planning
Project Management
Psychology
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Sciences
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Transport Management

CLIMASP Competences

A number of courses successfully integrated the CLIMASP competences with a great level of score in the rubric. The universities that were involved in a previous project concerning ESD such as the RUCAS project, have achieved best results in the effort to integrate and re-orient the syllabi and the curricula in the CLIMASP perspective. In any case, also some new universities have achieved excellent results in this process.

Some disciplines such as Architecture, Ethics, Citizenship and Economics reached higher scores in the rubrics. They have successfully adapted their courses to the CLIMASP principles. There was evidence in a small number of institutions that Law Faculties were also very successful in their approaches. After the second assessment, the courses are more integrated with the CLIMASP concepts and the development of the modules. In addition, the focus of the discipline is maintained when adapting to CLIMASP. However, some factors emerged during the second assessment and some courses were not sent for the second evaluation and the following critical issues emerged:

Some universities reported that they haven't received the first rubric evaluation. In this case the second evaluator provided to complete the missing rubrics. A number of universities haven't changed their syllabi following the first evaluator's rubrics and comments.

External Rubric

The second evaluation of the courses was carried out using a pre-designed External Rubric and the feedbacks given in the first round assessment. Some syllabi don't fit the CLIMASP approach or were incomplete (15%). The remaining syllabi were evaluated with the rubric and the percentages of the four levels are as follows:

Naïve; Naïve/Novice; Novice (1; 1/2; 2): 16%

Novice/Apprentice; Apprentice(2/3; 3): 47%

Apprentice/Masters; Masters (3/4; 4): 37%

In the following section a detailed description is provided regarding the results reached for each question of the assessment.

Question 1

Does the work include selected concepts and methods from two or more disciplinary traditions relevant to the purpose of the work?

Generally, this question fell into the Apprentice category. The disciplines were mentioned and developed in a meaningful way. As the result of course designer's understanding of their own discipline and engagement in a meaningful study of the theory and practices of CLIMASP approach. There is an improvement of integration of the main discipline and climate change. However a number of courses still sacrifice the main discipline to integrate the CLIMASP one. A suggestion could be the dissemination of best practice inside the universities and across the CLIMASP community.

Question 2

Is there an integrative device or strategy (e.g., a model, metaphor, or analogy)?

The assessment was Apprentice level in the majority of courses reviewed. If metaphors weren't clear some suggestions were given. I recommend that further work needs to be conducted in this area in order to provide support for the course designer. When used properly, this device is an excellent support in keeping all of the elements of a curriculum in focus.

Question 3

Is there a sense of balance with regard to how disciplinary perspectives are brought together to advance the purpose of the work?

The majority scored on the Apprentice level in this element. Sometimes the integration was not clear or not developed, and a low score was achieved in this question. There was a tendency to underline CLIMASP approach only in single element in the Learning Outcomes and not in evidence in the rest of course modules.

Question 4

Do the conclusions drawn from the work indicate that understanding has been advanced by the integration of disciplinary views?

The master level took in account the pedagogical approach, the methodologies employed, the types of assessment used, and the engagement of the student in an experiential manner where it was encouraged to connect theory to future professional practice and where Higher Order Questioning and thinking Skills were encouraged. Some courses that don't engage students in creative and problem solving approaches were assigned in a lower level. Again a dissemination of examples of good designed curriculum could support the course designer for future revisions and curriculum development.

Question 5

Does the student exhibit awareness of the limitations and benefits of the contributing disciplines?

Few courses involved student feedback, evaluations, pre and post- course reactions and interim in the final assessments. It could be a good practice to ask students a feedback with a pre/post questionnaire or semistructured interview. Some institutions introduced the courses assessment in their evaluations processes and it could be used for a students' feedback.

Conclusions

To conclude in the revised courses:

- Several syllabi reached a master level and should be disseminated through conference of paper presentations and/ or publications.
- In the same way some courses should be selected as Exemplars across all disciplines in the partner universities.
- Greater emphasis should be placed on engaging students in course design, assessment and pre and post evaluation of the impact of CLIMASP on their academic lives.
- Peer support and evaluation of courses both within and across the partner institutions is recommended.
- Creation of a shared resources database could be useful for the empowerment of the courses syllabi.