

# GEOM30012 Integrated Spatial Systems

<b>Credit Points:</b>	12.50																																				
<b>Level:</b>	3 (Undergraduate)																																				
<b>Dates &amp; Locations:</b>	This subject is not offered in 2014.																																				
<b>Time Commitment:</b>	Contact Hours: 48 hours, comprising of two hours of lectures per week and 4 days fieldwork Total Time Commitment: 170 hours																																				
<b>Prerequisites:</b>	<p>Successful completion of the following subjects are required to enroll:  <b>Note</b> : GEOM20015 and GEOM30013 may be completed concurrently</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST10007 Linear Algebra</td> <td>Summer Term, Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>OR:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST10005 Calculus 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>OR:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST10006 Calculus 2</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>and:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GEOM20015 Surveying and Mapping</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>GEOM20013 Applications of GIS</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>GEOM30009 Imaging the Environment</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>COMP20005 Engineering Computation</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>GEOM30013 Land Administration Systems</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	MAST10007 Linear Algebra	Summer Term, Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	MAST10005 Calculus 1	Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	MAST10006 Calculus 2	Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	GEOM20015 Surveying and Mapping	Semester 2	12.50	GEOM20013 Applications of GIS	Semester 1	12.50	GEOM30009 Imaging the Environment	Semester 1	12.50	COMP20005 Engineering Computation	Semester 1, Semester 2	12.50	GEOM30013 Land Administration Systems	Semester 2	12.50
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<b>Corequisites:</b>	None																																				
<b>Recommended Background Knowledge:</b>	Students will need to acquaint themselves with project management techniques, scientific communication strategies (written and verbal) and various techniques of resource assessment.																																				
<b>Non Allowed Subjects:</b>	<p>Students cannot enrol in and gain credit for this subject and:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>EVSC30007 Integrated Landscape Problem Solving</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	EVSC30007 Integrated Landscape Problem Solving	Semester 2	12.50																														
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<b>Core Participation Requirements:</b>	<p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes,																																				

	<p>Assessment and Generic Skills sections of this entry.</p> <p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a></p>
<b>Contact:</b>	<p>Mr Clifford Ogleby</p> <p>Email: <a href="mailto:cogleby@unimelb.edu.au">cogleby@unimelb.edu.au</a> (mailto:cogleby@unimelb.edu.au)</p>
<b>Subject Overview:</b>	<p><b>AIMS</b></p> <p>Solutions to environmental dilemmas that face us in the 21st century require an integrated, multi-disciplinary approach. This subject, delivered in the final semester of the Bachelor of Environments, provides a basis for students to integrate and apply the knowledge they have gained throughout their studies in different disciplines to solve real world problems.</p> <p>The project will provide opportunities to apply knowledge of fundamental concepts, theory, and applications in core areas of positioning technologies and measurement integration, GIS, distributed spatial computing and mapping, web mapping, and location-based services. The application of these skills will be undertaken during a 4 day field work programme at the Dookie Campus.</p> <p>The subject will also provide ample opportunity for the students to gain experience and skills in how to perform a real-world, client-driven, interdisciplinary project, including important communication and organizational skills.</p> <p>This subject will have a 4 day residential field work at the Dookie Campus during the Semester 2 mid semester break. This field work is compulsory for all students.</p> <p><b>INDICATIVE CONTENT</b></p> <p>Project management, scientific communication, data collection and management, map design, GPS surveying.</p>
<b>Learning Outcomes:</b>	<p><b>INTENDED LEARNING OUTCOMES (ILO)</b></p> <p>Having completed this unit the student is expected to:</p> <ol style="list-style-type: none"> <li>1 Access, collect, organize and present (spatial) data in ways that support landscape management planning;</li> <li>2 Integrate appropriate components of spatial technologies to meet the requirements of specific industry problems;</li> <li>3 Contribute spatial information to enhancing the ecological, economic and social value of the study site;</li> <li>4 Communicate these enhancements effectively using appropriate spatial formats;</li> <li>5 Manage a project, including time and workload management, and project presentation;</li> <li>6 Critically reflect the process and achievements of their project, and the contribution and conduct of themselves and their colleagues.</li> </ol>
<b>Assessment:</b>	<p>Group project proposal (3000 words), due in week 5 (30%), each group will have 3 or 4 students, requiring approximately 30-35 hours of work per student. Addresses Intended Learning Outcome (ILOs) 1,2,3; Group project report (5000 words), due in week 12 (40%). ILO 1,2,3,4,5; Group project report (6000 words), due in week 12 (60%), each group will have 3 or 4 students, requiring approximately 60-65 hours of work per student. Addresses ILOs 1,2,3,4,5; Individual project evaluation report (blog, 500 words overall, at least 4 entries), continuing, ends in examination period (10%). Requires approximately 10 – 13 hours of work. Addresses ILOs 5 and 6. Participation in the field work is a hurdle requirement to pass this subject.</p>
<b>Prescribed Texts:</b>	<p>Project manual accessible from the subject's LMS page. UoM library webpage and Google Scholar for literature search</p>
<b>Breadth Options:</b>	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> <li># <b>Bachelor of Arts</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-ARTS">https://handbook.unimelb.edu.au/view/2014/B-ARTS</a>)</li> <li># <b>Bachelor of Commerce</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-COM">https://handbook.unimelb.edu.au/view/2014/B-COM</a>)</li> <li># <b>Bachelor of Environments</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-ENVS">https://handbook.unimelb.edu.au/view/2014/B-ENVS</a>)</li> </ul>

	<p># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-MUS">https://handbook.unimelb.edu.au/view/2014/B-MUS</a>)</p> <p>You should visit <b>learn more about breadth subjects</b> (<a href="http://breadth.unimelb.edu.au/breadth/info/index.html">http://breadth.unimelb.edu.au/breadth/info/index.html</a>) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<p>On completion of the subject the students will have the:</p> <ul style="list-style-type: none"> <li># Ability to apply knowledge of science and engineering fundamentals</li> <li># Ability to undertake problem identification, formulation, and solution</li> <li># Ability to communicate effectively, with the engineering team and with the community at large</li> <li># Ability to manage information and documentation</li> <li># Understanding of professional and ethical responsibilities, and commitment to them</li> <li># Capacity for lifelong learning and professional development</li> </ul>
<b>Notes:</b>	<p><b>LEARNING AND TEACHING METHODS</b></p> <p>The subject is co-taught with EVSC30007 (Integrated Landscape Problem Solving). The subject will be structured around a project in which Geomatics students will work in teams with Landscape Management students to develop solutions for and find answers to questions that require a combination of spatial information and landscape management skills.</p> <p>The projects will address real-world problems and challenges. Study sites may be off-campus.</p> <p>For approximately half of the semester, lectures will discuss generic project management and communication principles and skills, relating them back to the student projects. In the other half of the semester, workshops and tutorials will introduce specialist topics and skills that the students may need for their project work. Throughout the whole semester, practicals are run that offer students a dedicated time for getting together as a team. These practicals also offer opportunity for in-depth discussion with the lecturers of approaches students may choose or challenges they may face in their projects. Further, students are expected to self-organize project including time line and task management.</p> <p><b>INDICATIVE KEY LEARNING RESOURCES</b></p> <p>Project manual accessible from the subject's LMS page.</p> <p>UoM library webpage and Google Scholar for literature search</p> <p><b>CAREERS / INDUSTRY LINKS</b></p> <p>The Merri Creek Management Committee (MCMC) serves as outside client for the student projects. They provide an introduction into their work, the Merri Creek, and the kind of challenges they are facing at the beginning of the semester (typically week 2), as a client will discuss the project proposals with the individual groups (typically in week 5), and will participate at the student presentations at the end of the semester.</p> <p>Students who are working (part-time) in relevant work places are free to use resources (equipment or colleagues/supervisors as consultants) from these work places in their project work as long as this is properly indicated.</p>
<b>Related Majors/Minors/Specialisations:</b>	<p>Environmental Engineering Systems major          Environments Discipline subjects          Geomatics          Geomatics (Geomatic Engineering) major          Master of Engineering (Geomatics)          Science-credited subjects - new generation B-SCI and B-ENG.</p>