GEOM90007 Spatial Visualisation

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: July, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 16 hours of lectures, 16 hours practical work. This is a two week intensive subject which will run from 13th-24th July 2015. Total Time Commitment: 140 hours
Prerequisites:	Successful completion of the following subject, or equivalent, is required to enrol:

Subject	Study Period Commencement:	Credit Points:
GEOM90008 Foundations of Spatial Information	Semester 1	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	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, Assessment and Generic Skills sections of this entry. 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: http://services.unimelb.edu.au/disability
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Subject Overview:	**AIMS** Spatial Visualisation is about using and designing effective mechanisms for presenting and exploring the patterns embedded in large and complex data sets. Spatial Visualisation is especially important to spatial decision making, since geographic data sets are both voluminous and rich in structure. By addressing the presentation and interaction with spatial information, this subject complements other topics that deal with the storage and querying of spatial information (e.g. GEOM90018 Spatial Databases), and the processing of spatial information (e.g. GEOM90006 Spatial Analysis). This subject is vital for anyone wishing to work with geographic information systems or spatial databases, or in the area of geographic information science. It will also be of relevance to those with an interest in design, especially graphical and interaction design. **INDICATIVE CONTENT** Fundamentals of information visualisation and data graphics; human perception; foundations of user interface design; cartographic design; geovisualisation; exploratory spatial data analysis; evaluation of visualisation interfaces.

Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO)** Having completed this unit the student is expected to: 1 Understand what makes visualisation of geographic information different from information visualisation in other domains 2 Critically evaluate the designs of maps and user interfaces for spatial data 3 Analyse big spatial data sets using geovisualisation techniques, and compare alternative technique.
Assessment:	1 hour written exam (500 words), held end of week 1 (20%). Associated with Intended Learning Outcomes (ILOs) 1 and 2. One 2000 word report, due end of week 2, requiring approximately 30 hours of work (30%). Addresses ILO 3. One 2000 word report, due end of week 2, requiring approximately 30 hours of work (30%). Addresses ILO 3. One 10 minute oral presentation, due end of week 2, requiring approximately 20 hours of work (20%). Addresses ILO 3.
Prescribed Texts:	None
Recommended Texts:	# Tufte, E. 2001 The Visual Display of Quantitative Information. Graphics Press. # Ward, M.; Grinstein, G., and Keim, D., 2010 *Interactive Data Visualization: Foundations, Techniques, and Applications*. A K Peters. # Dykes, J., MacEachren, A., Kraak, M-J., 2005. *Exploring Geovisualization*. Pergamon.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On successful completion of this subject students should have the: 1 Ability to apply knowledge of science and engineering fundamentals 2 Ability to undertake problem identification, formulation, and solution 3 Ability to communicate effectively, with the engineering team and with the community at large 4 Capacity for creativity and innovation 5 Understanding of professional and ethical responsibilities, and commitment to them.
Notes:	**LEARNING AND TEACHING METHODS** Lectures will cover the foundation concepts and techniques important to understanding the design and analysis of visual and cartographic data presentation. In practical work, students will gain hands-on experience with a range of visualisation tools and techniques. Practical development tools, like the Processing language, will be applied to a range of spatial visualisation problems, including an international visualisation challenge. This subject is taught over a two week period prior to the start of semester 2; students need to be available full time over that period. **INDICATIVE KEY LEARNING RESOURCES** # Tufte, E. 2001 The Visual Display of Quantitative Information. Graphics Press. # Ward, M.; Grinstein, G., and Keim, D., 2010 *Interactive Data Visualization: Foundations, Techniques, and Applications*. A K Peters. # Dykes, J., MacEachren, A., Kraak, M-J., 2005. *Exploring Geovisualization*. Pergamon. **CAREERS / INDUSTRY LINKS** Practical context and industry links are provided in the problem-based learning exercises.
Related Course(s):	Master of Geographic Information Technology Master of Information Systems Master of Information Systems Master of Information Systems Master of Information Technology Master of Information Technology Master of Philosophy - Engineering Master of Spatial Information Science Ph.D.- Engineering

Related Majors/Minors/ Specialisations:	MIS Professional Specialisation MIS Research Specialisation MIT Spatial Specialisation Master of Engineering (Spatial)