EDUC90866 Maths: Reasoning & Problem Solving(F-12)

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 24 hours Total Time Commitment: 170 hours
Prerequisites:	To enrol in this subject, you must be admitted in Professional Certificate in Mathematics Education. This subject is not available for students admitted in any other courses.
Corequisites:	None
Recommended Background Knowledge:	Qualified primary or secondary teacher
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Commonwealth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Overview, Objectives, 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 course are encouraged to discuss this matter with the Student Equity and Disability Support Team: http://www.services.unimelb.edu.au/disability/
Coordinator:	Assoc Prof Wee Tiong Seah
Contact:	School of Melbourne Custom Programs TL-postgrad@unimelb.edu.au
Subject Overview:	This subject explores the pedagogical content knowledge for developing students' reasoning and problem solving across Foundation to Year 12 mathematics. Participants will study research on issues associated with the teaching and learning of reasoning and problem solving. They will also consider pedagogical issues such as teacher questioning, selection of good examples and explanations, effective use of resources (e.g. technology and models) and the role of formative assessment. Participants will consider approaches for fostering students' positive disposition towards reasoning, problem solving, and mathematics more generally. Links will be made between classroom practice and research into the teaching and learning of mathematics.
Learning Outcomes:	At the completion of this subject, students should be able to 1 identify pedagogical issues related to developing students' reasoning and problem solving, 2 understand how problem solving and reasoning may be developed across Foundation to Year 12 mathematics, 3 critique Foundation to Year 12 mathematics teaching resources in the light of research evidence, 4 identify conceptual hurdles in reasoning and problem solving, and the importance of formative assessment for diagnosing students' understanding and skills in order to inform teaching, 5 design teaching to promote deep mathematical understanding and challenge all students, 6 choose and use technology appropriately and efficiently in mathematics teaching, 7 promote students' use of correct verbal and written mathematics, 8 appreciate the importance of students possessing a positive disposition towards learning and using mathematics.

Assessment:	2500 word report related to a given issue associated with the teaching and learning of reasoning and problem solving - due mid teaching period - 50% 2500 word report on teaching approaches to promote students' reasoning and problem solving - due at the end of the teaching period - 50% Hurdle requirements: Participation in intensives, completion of all online tasks (including contribution to wikis, online discussion forums)
Prescribed Texts:	Nil
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:	Graduates will develop the following generic skills: # Be flexible and able to adapt to change through knowing how to learn # Understand the significance of developing their practice on the basis of research evidence # Be skilled communicators who can effectively articulate and justify their practices as knowledgeable agents of change # Work in teams with skills in cooperation, communication and negotiation
Links to further information:	http://www.commercial.unimelb.edu.au/courses
Related Course(s):	Professional Certificate in Mathematics Education (Primary) Professional Certificate in Mathematics Education (Years 11-12) Professional Certificate in Mathematics Education (Years 7-10)