

Course Description

MEDD6389 The Philosophical, Social and Cultural Aspects of Mathematics Education

Course description			
<p>This course focuses on the features that characterize mathematics as a distinctive discipline. It explores the relationship between the nature of the discipline, the aims of mathematics education, and the nature of mathematics teaching and learning. The effect on teachers' and students' beliefs and attitudes, and on students' achievement will also be discussed. In addition, this course investigates the social and cultural factors that affect the teaching and learning of mathematics. This includes international comparisons of socio-cultural differences; ethnomathematics from anthropological and utilitarian perspectives; social inequalities including gender issues; and the relationship between language and mathematics. The objectives of the course are to enable students to (1) reflect critically on the features that characterize mathematics as a distinctive discipline, and be aware of the conflicting views on the nature of mathematical knowledge, (2) explore the relationship between the nature of mathematics and the nature of mathematics teaching and learning, (3) explore the social and cultural factors that affect the teaching and learning of mathematics, (4) reflect upon the aims of mathematics education and how mathematics instruction should be conducted, and (5) reflect critically on how teachers' views of mathematics and mathematics education affect their own practice.</p>			
<p>Coursework / Examination ratio: <u>100</u> % Coursework, <u>0</u> % Examination</p>			
Course objectives			
<p>Please refer to the course description above</p>			
Course learning outcomes			
<p>(a) reflect critically on the features that characterize mathematics as a distinctive discipline, and be aware of the conflicting views on the nature of mathematical knowledge;</p> <p>(b) explore the relationship between the nature of mathematics and the nature of mathematics teaching and learning;</p> <p>(c) explore the social and cultural factors that affect the teaching and learning of mathematics;</p> <p>(d) reflect upon the aims of mathematics education and how mathematics instruction should be conducted, and</p> <p>(e) reflect critically on how teachers' views of mathematics and mathematics education affect their own practice.</p>			
Course assessment methods			
Assessment method	Type of assessment (e.g. description of assignment)	Weighting (%)	Aligned course learning outcome(s)
	Reflection on a mathematics classroom incident		
	Individual essay		
Course content and topics			
<ul style="list-style-type: none"> • What is the philosophy of mathematics education? • The nature of mathematics • The nature of mathematics teaching and learning • A socio-cultural perspective of mathematics education • Culture and mathematics teaching and learning • Implications of philosophical, social and cultural perspectives of mathematics education for teaching practices 			
Required / recommended readings and online materials (to be entered in the SIS / Moodle)			
<p>Bishop, A.J. (1988) <i>Mathematical enculturation</i>. Dordrecht: Kluwer</p> <p>Ernest, P. (1991) <i>The philosophy of mathematics education</i>. London: Falmer Press</p> <p>Grouws, D.A. (Ed.) (1992) <i>Handbook of research on mathematics teaching and learning</i>. New York: Macmillan</p>			

Leung, F.K.S., Graf, K-D. & Lopez-Real, F.J. (Eds.) (2006) *Mathematics education in different cultural traditions – A comparative study of East Asia and the West*. New York: Springer
Skovsmose, O. (1994) *Towards a philosophy of critical mathematics education*. Dordrecht: Kluwer

Other additional course information²⁰ (e.g. course schedule, course quota, etc.)

Nil