

**Description of Course Unit**

<b>Course unit title</b>	<b>Applied Mathematics for Economics</b>
<b>Course unit code</b>	EI 212226
<b>Type of course unit (compulsory, optional)</b>	Compulsory
<b>Level</b>	Bachelor of Economics (B.Ec)
<b>Semester</b>	3
<b>Number of credits</b>	3
<b>Name of lecturer(s)</b>	Diah Setyawati Dewanti, M.Sc., PhD (ddewanti@umy.ac.id)
<b>Learning outcomes of the course unit</b>	<p>Students are able to estimate, explain, and identify unconstrained optimization.</p> <p>Students are capable of explaining, elaborating, and predicting constrained optimization.</p> <p>Students are capable of applying, predicting, and interpreting matrices.</p> <p>Students are capable of applying, solving, and operating in linear programming.</p> <p>Students are capable of applying, operating, and analyzing the application of mathematics in calculus.</p>
<b>Mode of delivery (face-to-face, distance learning)</b>	Face-to-face and blended learning
<b>Prerequisites and co-requisites</b>	All compulsory courses from semester 1-2
<b>Course content</b>	<ol style="list-style-type: none"> <li>1. Simple derivation without profit maximization constraints</li> <li>2. Simple derivation without constraints Home-principal analysis</li> <li>3. Compound derivation with constraints: Lagrange and Kuhn Tucker analysis</li> <li>4. Matrix completion with Cramer's and Gaussian matrices</li> <li>5. Application of matrices in calculations using input-output tables</li> <li>6. Application of matrices in the calculation of technology matrices</li> <li>7. Application of linear programming with graphical methods</li> <li>8. Application of linear programming with the algebraic method</li> <li>9. Application of linear programming with simplex method</li> <li>10. Consumer and Producer Optimization</li> <li>11. Application of Game theory</li> <li>12. Application of mathematics in game theory</li> </ol>



<b>Recommended or required reading and other learning resources/tools</b>	<ol style="list-style-type: none"> <li>1. Dumairy. 2010. Matematika Terapan untuk Bisnis dan Ekonomi. Edisi</li> <li>2. kedua belas. BPFE. Yogyakarta</li> <li>3. John E. Weber. Mathematical Analysis: Business and Economics. McGraw-Hill, New York</li> <li>4. Alpha Chiang &amp; Kevin Wainwright. 2005. Fundamental Methods of Mathematical Economics. Fourth Edition. Mc.Graw-Hill Book Inc. New York</li> <li>5. Ian Jacques, Mathematics for Economics and Business, Addison-Wesley, New York/Tokyo/Singapore</li> </ol>
<b>Planned learning activities and teaching methods</b>	Case study, self-directed study, simulation, focus group discussion, cooperative learning,
<b>Language of instruction</b>	Indonesian and English for international class
<b>Assessment methods and criteria</b>	Quiz, assignment, Evaluation Course Learning Outcome (ECLO)

GRADE	SCORE (%)	PREDICATE	Description	Conversion Value
A	$80 \geq ..$	Excellence	Achieve learning outcomes with excellence grade	4
AB	$75 \leq AB < 80$	Very Good	Achieve learning outcomes with very good grade	3,5
B	$65 \leq B < 75$	Good	Achieve learning outcomes with good grade	3
BC	$60 \leq BC < 65$	Good Enough	Achieve learning outcomes with good enough grade	2,5
C	$50 \leq C < 60$	Enough	Achieve learning outcomes with enough grade	2
D	$35 \leq D < 50$	Less	Achieve learning outcomes with less grade	1
E	$.. < 35$	Failed	Failure to achieve learning outcomes	0