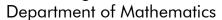


DE LA SALLE UNIVERSITY College of Science





OPRESM1 Operations Research Models 1

Prerequisite: LINPROG	Prerequisite to: OPRESM2

Instructor:	Contact details:
Consultation Hours:	Class Schedule and Room:

Course Description

This course is designed for BS Mathematics students who are majoring in Business Applications covering topics on the integer linear programming (ILP) models, transportation model, network models, unconstrained and constrained optimization.

Critical and Creative Thinker Effective Communicator Lifelong Learner Service-Driven Citizen On completion of this course, the student is expected to present the following learning outcomes in line with the Expected Lasallian Graduate Attributes (ELGA) Learning Outcome Learning Outcome Develop an understanding and appreciation of specialized linear programming concepts (integer LP, transportation and assignment models, network models) and unconstrained and constrained optimization as effective tools in addressing real world problems

especially those that are relevant to decision making in business,

Final Course Output

As evidence of attaining the above learning outcomes, the student is required to submit the following during the indicated dates of the term.

economics and other related areas.

and maleated dates of the terms		
Learning Outcome	Required Output	Due Date
At the end of the course, the student will	Case Studies involving any ONE of	Week 13
develop an understanding and appreciation	the following types:	
of specialized linear programming	(1) Minimum Cost Network Flow	
concepts as effective tools in addressing	Problem	
real world problems especially those that	(2) Integer Programming Problem	
are relevant to decision making in	(3) Constrained or Unconstrained	
business, economics and other related	Optimization Problem	
areas.	Form of output: written	

Rubric for assessment

Written Grou	p Report			
CRITERIA	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Content and Organization (55%)	In-depth and insightful discussion in addition to score 3 performance	Logical sequencing of information throughout. Sufficient supporting details. Clear and effective concluding paragraph	Logical sequencing of information most of the time. Details are given but inadequate to support the topic. Clear concluding paragraph but lacks effectiveness	Information presented with little organization. Most of the details irrelevant. Concluding paragraph not clear
Grammar (30%)		No error	Between one and three errors	More than four errors
Bibliography (15%)		All resources cited	Some of the resources not cited	Majority of the resources not cited

Group Member Assessment

Oroup member Assessment				
Criteria	Excellent/4	Good/3	Satisfactory/2	Needs
				Improvement/1
Contribution 25%	Group member completed an equal share of work and strived to maintain that equity throughout the project	Group member contributed significantly, but other members clearly contributed more	Group member contributed little toward the project	Group members contributions were insignificant or nonexistent

Dependability 25%	Group member provided contributions with 100% punctuality and always appeared for group work	Group member contributions were mostly punctual and almost always appeared for group work	Group member contributions were regularly late and often missed scheduled group work	Group member was undependable forcing other members to take up the slack
Efficiency 25%	Work performed was very useful and contributed significantly to the final product	Participation was inefficient and thus contributions were less than expected	Work performed was inappropriate and mostly useless toward the final product	Work performed was completely ineffective and useless in the final product
Attitude 25%	Group member was very positive and pleasant to work with	Group member didn't complain but offered little enthusiasm	Group member sometimes complained and was somewhat of a burden	Group member often complained and generally demoralized the group

Additional Requirements
Aside from the learning output, the student will be assessed at other times dur

areas.			Graphmatica in solving IP problems
	4. Unconstrained Optimization 4.1 Golden Mean Search 4.2 Method of Steepest Ascent 4.3 Gradient Method 4.4	Week 8 - 10	Group discussion and presentations Skills exercises Student self-assessment and Reflection Seatwork and Assignments Use of Mathematica and/or MS Excel to create simple programs or routines in executing the different methods of solving
	5. Constrained Optimization	Week	Group discussion and
	5.1 Lagrange Multiplier	11	presentations
	5.1.1 An Algebraic Derivation	13	Skills exercises
	5.1.2 Geometric Interpretation Applications		Student self-assessment and Reflection
	5.2 Kuhn-Tucker Conditions		Seatwork and Assignments
	5.2.1 Necessary and Sufficient		Use of Mathematica in
	Conditions		visualizing the optimal
	5.2.2 Geometric Interpretation Applications		problem geometrically
	FINAL EXAMINATION	Week	
		14	

References

Students are expected to be attentive and exhibit the behavior of a mature and responsible individual during class. They are also expected to come to class on time and prepared.

Sleeping, bringing in food and drinks, and wearing a cap and sunglasses in class are not allowed.

Students who wish to go to the washroom must politely ask permission and, if given such, they should be back in class within 5 minutes. Only one student at a time may be allowed to leave the classroom for this purpose.

Students who are absent from the class for more than 5 meetings will get a final grade of 0.0 in the course.