

# EMP 504: Quantitative Methods in Management

Room: ENGINEERING 145 WESTCAMPUS

Fall Semester 2020

Instructor: Professor Kevin Moriarty, Email: kevin.moriarty@stonybrook.edu

Office: Old Computer Science Rm 1423 # 631-632-1898, Office Hours

## **COURSE OBJECTIVES:**

This course is a rapid introduction to the application of modern mathematical concepts and techniques in management science. Algebraic operations, mathematical functions and their graphical representation, and model formulation are reviewed. Topics covered include the following: algebraic and graphic methods of linear programming; PERT, CPM, and other network models; and inventory theory. Simple management-oriented examples are used to introduce mathematical formulations and extensions to more general problems. The computer laboratory may be used to give students experience with PC software packages that solve problems in all course topics.

Interpretation of computer outputs is also stressed.

The student will perform the following to achieve this:

1. Develop and solve mathematical decision models. Management techniques, along with the application of mathematical modeling concepts will be applied.
2. Evaluate the impact of alternatives and evaluation techniques to track multiple projects equivalent values.
3. The student will also develop an understanding of the concepts and techniques used in industry today.

**TEXT:** Render, Stair, & Hanna, & Hale, Quantitative Analysis for Management, Pearson Prentice Hall, 13th edition, 2012. ISBN: -13:978-0-13-4518541

**GENERAL NOTES:** The course will be conducted using lecture, open discussions, during scheduled classes and computer modeling, distance learning techniques (black board).

We will examine Topics and concepts of project management, forecasting, Transportation problems, Regression models, liner programming, Queuing Theory.

Work assignments will be required. This provides ample opportunity for learning, and also evaluation of the student's performance. Assignments will be due on an assigned date, as designated by the syllabus. The assignments should be presented in a clear format so computations can be evaluated easily. Prepared spreadsheet solutions and graphics will also be expected. Any notes and assumptions or summary comments should be included.

All work and tests will be promptly graded. Late work generally will not be accepted.

Two tests will be given under academic conditions, and will be administered in class. Work assignments should be prepared individually, although they are not required to be, and it is understood that collaboration with others on the outside class work may be educationally beneficial.

Fundamental Academic Ethics require students to give proper credit for work where credit is due. Therefore, references should be cited on all written work to acknowledge the aid of other individuals and both published and unpublished references.

"The University at Stony Brook expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty is required to report disruptive behavior that interrupts faculty's ability to teach, the safety of the learning environment, and/or students' ability to learn to Judicial Affairs."

## **GRADES:**

Home Work	50%	5 assignments 10 points each.
Exams (2)	40%	2 Exams 20% each
Discussion Board Participation	(5 at 2 points each)	
	10%	Participation (discussion boards will be graded for participation)

\*Optional Project 20% 3 Concepts, Abstract, State Concept, Define, Apply, Conclusion  
(Optional Project Pending Personal Decision to Swap)

**Goals:** Upon completion of the course, the student should be able to use Analysis.

## EMP504 Fall 2019 Typical Syllabus

<b>Week 1</b>	<b>Aug 24–Aug 28</b>	1&2	Introduction Break Even Analysis
<b>Week 2</b>	<b>Aug 31- Sep 4</b>		2 & 3 Decision Analysis, Probability & Regression
<b>Week 3</b>	<b>Sep 7-Sep 11</b>	5	Forecasting
<b>Week 4</b>	<b>Sep 14-Sep 18</b>	5	Forecasting
<b>Week 5</b>	<b>Sep 21-Sep25</b>	6	Inventory Control
<b>Week 6</b>	<b>Sep 28-Oct 2</b>	7	Linear Programming
<b>Week 7</b>	<b>Oct 5-Oct 9</b>		<b>EXAM #1 Online Due Oct 20<sup>th</sup> Midnight</b>
<b>Week 8</b>	<b>Oct 12-Oct 16</b>	8	Linear Programming
<b>Week 9</b>	<b>Oct 19-Oct 23</b>	9	Transportation Model
<b>Week 10</b>	<b>Oct 26-Oct 30</b>	9	Assignment Model
<b>Week 11</b>	<b>Nov 2-Nov 6</b>	10	Integer Programming
<b>Week 12</b>	<b>Nov 9- Nov 13</b>	11	Project Management & CPM/PERT
<b>Week 13</b>	<b>Nov 16-Nov 20</b>	12	Queuing Theory
<b>Week 14</b>	<b>Nov 23-Nov 25</b>	13	Simulation Modeling
<b>Week 15</b>	<b>Nov 30-Dec 4</b>	15	Statistical Quality Control <b>Online</b>
<b>Finals Week</b>	<b>Dec 7- Dec 11</b>		<b>Review &amp; EXAM #2 Online</b>

### Due Dates

HW#1 Sept 20nd

HW#2 Oct 11th

HW#3 Nov 1rd

HW#4 Nov 22th

HW#5 Nov 29th

### REQUIRED STATEMENTS:

#### **Student Accessibility Support Center Statement**

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631)632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Student Accessibility Support Center. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities>.

#### **Academic Integrity Statement**

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at [http://www.stonybrook.edu/commcms/academic\\_integrity/index.html](http://www.stonybrook.edu/commcms/academic_integrity/index.html)

#### **Critical Incident Management**

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

**Course Academic Integrity:**

Fundamental Engineering Ethics require engineers to give proper credit for engineering work where credit is due. Therefore, references should be cited on all written work to acknowledge the aid of other individuals and both published and unpublished references. “Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/> “

“The University at Stony Brook expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty is required to report disruptive behavior that interrupts faculty’s ability to teach, the safety of the learning environment, and/or students’ ability to learn to Judicial Affairs.”

The University Senate Undergraduate and Graduate Councils have authorized that the following required statements appear in all teaching syllabi (graduate and undergraduate courses) on the Stony Brook Campus.

**Americans with Disabilities Act:**

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.