

MIDSTATE COLLEGE
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Course: MBA 618 Quantitative Business Analysis

Credit: 4 Quarter Hours

Method of Delivery: eLearning

Course Description: This course provides the mathematical, probabilistic and statistical tools used for supporting the management and operations of today's businesses. Students will apply statistical concepts and techniques to real-world business issues and challenges. This course will emphasize the use of computer software (i.e. Minitab, SPSS) to analyze data as the basis for making informed and calculated managerial decisions. Topics include: hypothesis testing, regression, forecasting, factor analysis, and ANOVA.

Instructor: Dr. Bridgette Heard

Midstate Email: BHeard@Midstate.edu

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Office Hours: Monday (4 p.m. – 6 p.m.)

Prerequisite(s): N/A

Text: Quantitative Methods for Business – 13th Ed.

Author(s): Anderson et al.

Publisher: Cengage

Materials Needed for this Course:

Hardware/Software and Equipment: Microsoft Office (Excel) and Minitab

Topics:

1. Probability
2. Utility and Game Theory
3. Time Series and Forecasting
4. Project Scheduling
5. Simulation
6. Distribution and Network Models

Learning Objectives: Upon completion of this course, the student will be able to:

Diagnose, dissect, and improve complex business problems through quantitative analysis.
Examine and explain the correlation between two or more variables.
Make a recommendation about a problem based on data analysis results and conclusions drawn.
Design and assess methods for business planning through projections.
Create models to understand how to improve business processes.

Midstate Grading Scale:

- 90 - 100 A
- 80 - 89 B
- 70 - 79 C
- 60 - 69 D
- 0 - 59 F

Assignments by Cognitive Domain and Course Learning Outcomes:

Cognitive Domain	% of Course	Course Learning Objectives	Assignments
Comprehension/ Knowledge		<ul style="list-style-type: none"> • Diagnose, dissect, and improve complex business problems through quantitative analysis. • Make a recommendation about a problem based on data analysis results and conclusions drawn. • Examine and explain the correlation between two or more variables. 	<ul style="list-style-type: none"> • Discussion Forums • Book Chapters • Individual Assignment(s) • Midterm • Final Project
Application	20%	<ul style="list-style-type: none"> • Diagnose, dissect, and improve complex business problems through quantitative analysis. • Examine and explain the correlation between two or more variables. • Make a recommendation about a problem based on data analysis results and conclusions drawn. 	<ul style="list-style-type: none"> • Discussion Forums • Individual Assignments • Midterm • Final Project
Analysis	20%	<ul style="list-style-type: none"> • Diagnose, dissect, and improve complex business problems through quantitative analysis. • Examine and explain the correlation between two or more variables. • Make a recommendation about a problem based on data analysis results and conclusions drawn. 	<ul style="list-style-type: none"> • Discussion Forums • Individual Assignments • Midterm Exam • Final Project
Evaluation	30%	<ul style="list-style-type: none"> • Diagnose, dissect, and improve complex business problems through quantitative analysis. • Examine and explain the correlation between two or more variables. • Make a recommendation about a problem based on data analysis results and conclusions drawn. 	<ul style="list-style-type: none"> • Individual Assignments • Midterm Exam • Final Project

Creating/ Synthesis	30%	<ul style="list-style-type: none"> • Diagnose, dissect, and improve complex business problems through quantitative analysis. • Examine and explain the correlation between two or more variables. • Make a recommendation about a problem based on data analysis results and conclusions drawn. • Design and assess methods for business planning through projections. • Create models to understand how to improve business processes. 	<ul style="list-style-type: none"> • Final Project
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Discussion Forums:

Getting Started Discussion Post: Students are required to create an initial post at the beginning of each course. In the initial post, students will do the following:

1. Provide a short introduction of him/herself;
2. Explain his/her personal or professional experiences encountered that relate to the general topic(s) of the course; and
3. Review course outcomes and state how the outcomes are relevant to his/her own professional experiences and interests.

All Discussion Forums (Weekly):

Initial Post (For Each Week): Students are required to post an initial response to the question/prompt for the week. The initial post must be at a minimum of 200 words. The initial post must include at least two references. References must be cited at the end of every post.

Response Posts (For Each Week): Students must reply and/or make comments to a minimum of one peer. Posts must be at least 150 words.

Replies/responses to the professor will count as one Response Post. You must respond to the professor each time he/she asks a question or asks for more information. Regardless of the number of replies back and forth, all responses from the student (under the same discussion post) count as one response post.

The discussion rubric will be used to assess student contributions to the discussions each week. Points will be derived from the student's comprehensive initial post and response posts, including but not limited to, the student's ability and effectiveness at raising questions, extending the discussion, and using resources that contribute to the topic(s). The success of the discussion forum comes from all learners. We encourage each student to share ideas, opinions, and concepts, and use resources to substantiate his/her position (as needed).

Getting Started Rubric					
Critical Elements	Exemplary	Proficient	Needs Improvement	Not Evident	Value
Comprehension	Develops an initial post with an organized, clear point of view or idea using rich and significant detail (18-20)	Develops an initial post with a point of view or idea using appropriate detail (16-17)	Develops an initial post with a point of view or idea but with some gaps in organization and detail (14-15)	Does not develop an initial post with an organized point of view or idea (0-13)	20
Timeliness		Submits initial post on time (8-10)	Submits initial post one day late (7)	Submits initial post two or more days late (0-6)	10
Engagement	Provides relevant and meaningful response posts with clarifying explanation and detail (18-20)	Provides relevant response posts with some explanation and detail (16-17)	Provides somewhat relevant response posts with some explanation and detail (14-15)	Provides response posts that are generic with little explanation or detail (0-13)	20
Critical Thinking	Draws insightful conclusions that are thoroughly defended with evidence and examples (25-30)	Draws informed conclusions that are justified with evidence (21-24)	Draws logical conclusions (18-23)	Does not draw logical conclusions (16-17)	30
Writing (Mechanics)	Initial post and responses are easily understood, clear, and concise using proper citation methods where applicable with no errors in citations (18-20)	Initial post and responses are easily understood using proper citation methods where applicable with few errors in citations (16-17)	Initial post and responses are understandable using proper citation methods where applicable with a number of errors in citations (14-15)	Initial post and responses are not understandable and do not use proper citation methods where applicable (0-13)	20
Total					100%
Adapted from original source: Southern New Hampshire University. (2017). Retrieved from www.snhu.edu.					

Discussion Rubric					
Critical Elements	Exemplary	Proficient	Needs Improvement	Not Evident	Value
References	Ties personal experiences to the concepts being studied, providing an orderly, brief version of the experience, with points stated clearly (9-10)	Ties personal experiences to the concepts being studied, providing a somewhat rambling version of the experience, with points stated (8)	Summarizes the concepts being studied with no ties to personal experiences (7)	Either did not post to the discussion or failed to accurately summarize concepts or tie them to personal experience (0-6)	10
Critique	Engages in collegial debates with peers and instructor (18-20)	Engages in collegial debates with selected peers only (16-17)	Dominates the discussion or is closed to differing points of view (14-15)	Student "lurks" in the forum, but no discussion postings are provided (0-13)	20
Originality	Avoids repeating in a different form points made by others (18-20)	Clarifies points made by others (16-17)	Rephrases ideas presented by others (14-15)	Agrees with what others say but offers no other response (0-13)	20
Evidence	Shows evidence of having completed, understood, and applied the readings and external resources, and provides appropriate citations (9-10)	Shows evidence of having completed and understood the readings and conducted some external research, but does not provide appropriate citations (8)	Shows some evidence of having completed the readings. No evidence of external research (7)	No evidence of completing the readings provided (0-6)	10
Argument	Objectively follows the evidence and the reasoning supports the argument (18-20)	Objectively follows the evidence, but the reasoning provided in the argument is incomplete or inconsistent with the view (16-17)	Exhibits closed-mindedness or hostility to reason (14-15)	Did not enter the discussion, or posted an initial thread and then failed to participate in the ongoing discussion (0-13)	20
Questions	Poses real-life questions or challenges that emerge from the discussion material that shape an informed conclusion (18-20)	Poses real-life questions or challenges that are loosely related to the discussion materials, and attempts to shape an informed conclusion (16-17)	Repeats questions or challenges posed in the discussion materials and repeats the conclusions presented by the authors (14-15)	No evidence of critical thinking (0-13)	20
Earned Total					100%
Adapted from original source: Southern New Hampshire University. (2017). Retrieved from www.snhu.edu.					

Individual Assignments:

Students are required to submit individual assignments on the weeks specified under assignment details. The individual assignments includes problems associated with assigned chapters.

Individual / Group (PBL) Assignments Rubric

Critical Elements	Exemplary	Proficient	Needs Improvement	Not Evident	Value
Main Elements	Includes all of the main elements and requirements and cites multiple examples to illustrate each element (23-25)	Includes most of the main elements and requirements and cites many examples to illustrate each element (20-22)	Includes some of the main elements and requirements (18-19)	Does not include any of the main elements and requirements (16-17)	25
Inquiry and Analysis	Provides in-depth analysis that demonstrates complete understanding of multiple concepts (18-20)	Provides in-depth analysis that demonstrates complete understanding of some concepts (16-17)	Provides in-depth analysis that demonstrates complete understanding of minimal concepts (14-15)	Does not provide in-depth analysis (0-13)	20
Integration and Application	All of the course concepts are correctly applied (9-10)	Most of the course concepts are correctly applied (8)	Some of the course concepts are correctly applied (7)	Does not correctly apply any of the course concepts (0-6)	10
Critical Thinking	Draws insightful conclusions that are thoroughly defended with evidence and examples (18-20)	Draws informed conclusions that are justified with evidence (16-17)	Draws logical conclusions, but does not defend with evidence (14-15)	Does not draw logical conclusions (0-13)	20
Research	Incorporates at least two scholarly/technical resources effectively that reflect depth and breadth of research (14-15)	Incorporates at least two resources effectively that reflect depth and breadth of research (12-13)	Incorporates at least one resource that reflects depth and breadth of research (11)	Does not incorporate scholarly resources that reflect depth and breadth of research (0-10)	15
Articulation of Response	Submission is properly cited, free of errors related to citations, grammar, spelling, syntax, and organization and is presented in a professional and easy-to-read format (9-10)	Submission has no major errors related to citations, grammar, spelling, syntax, or organization (8)	Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of main ideas (7)	Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of main ideas (0-6)	10
Earned Total					100%

Adapted from original source: Southern New Hampshire University. (2017). Retrieved from www.snhu.edu.

Individual student performance data from individual assignments will employ this rubric to assess Program Learning Objective (PLO) #1: apply quantitative reasoning and statistical analysis to support data-driven decisions in the business environment.

NOTE: The rubric is the same for both individual and group assignments.

Midterm Exam

The midterm exam will address the following learning objectives:

1. Diagnose, dissect, and improve complex business problems through quantitative analysis.
2. Examine and explain the correlation between two or more variables.
3. Make a recommendation about a problem based on data analysis results and conclusions drawn.

The midterm exam will include problem solving and short answer. The midterm will be 25% of the overall grade.

Final Project

Details on the final project will be provided in week 6. The final project will be 25% of the overall grade.

Final Project Rubric					
Critical Elements	Exemplary	Proficient	Needs Improvement	Not Evident	Value
Main Elements	Includes almost all of the main elements and requirements and cites multiple examples to illustrate each element (23-25)	Includes most of the main elements and requirements and cites many examples to illustrate each element (20-22)	Includes some of the main elements and requirements (18-19)	Does not include any of the main elements and requirements (0-17)	25
Inquiry and Analysis	Explores multiple issues through extensive collection and in-depth analysis of evidence to make informed conclusions (18-20)	Explores some issues through collection and in-depth analysis of evidence to make informed conclusions (16-17)	Explores minimal issues through collection and analysis of evidence to make informed conclusions (14-15)	Does not explore issues through collection and analysis of evidence and does not make informed conclusions (0-13)	20
Integration and Application	All of the course concepts are correctly applied (9-10)	Most of the course concepts are correctly applied (8)	Some of the course concepts are correctly applied (7)	Does not correctly apply any of the course concepts (0-6)	10
Critical Thinking	Demonstrates comprehensive exploration of issues and ideas before accepting or forming an opinion or conclusion (18-20)	Demonstrates moderate exploration of issues and ideas before accepting or forming an opinion or conclusion (16-17)	Demonstrates minimal exploration of issues and ideas before accepting or forming an opinion or conclusion (14-15)	Does not demonstrate exploration of issues and ideas before accepting or forming an opinion or conclusion (0-13)	20
Recommendation	Offers extensive alternative solutions via plan of action by applying respective theories (14-15)	Offers extensive alternative solutions via plan of action (12-13)	Attempts to offer an alternative solution via plan of action (11)	Fails to offer an alternative solution via plan of action (0-10)	15
Writing (Mechanics/Citations)	No errors related to organization, grammar and style, and citations (9-10)	Minor errors related to organization, grammar and style, and citations (8)	Some errors related to organization, grammar and style, and citations (7)	Major errors related to organization, grammar and style, and citations (0-6)	10
Earned Total					100

Assignment Details:

Activity Type	Number of Assignments	% of Grade
Discussion Forums (Weeks 1 – 12)	12	10%
Individual Assignments	11	40%
Midterm Exam and Final Project <i>Papers/Assignments will be submitted prior to the final class. Students will give individual presentations on their papers. The instructor will grade both the paper and the presentation with a rubric (provided to the student at the beginning of the term).</i> (Weeks 6 & 11)	2	50%
TOTAL		100%

Academic Integrity:

Academic integrity is a basic principle of the College's function. Midstate College students are expected to maintain a high level of academic honesty. Contrary actions may result in penalties such as failure of the assignment(s), a lesser grade on assignment(s), failure of the course and/or suspension from the College. The course instructor will review all submitted documents and supporting evidence in connection to the infraction. The course instructor will also review the student's personal file for other notifications of academic dishonesty before determining the level of action to be applied. The course instructor will complete the Academic Dishonesty Report form to document and describe the incident and actions taken, then kept on file. The student may appeal the decision to administration, whose decision will be final.

The following (**plagiarism, cheating, deception, sabotage, computer misuse and copyright infringement**) are included in the actions Midstate College considers behavior contrary to the academic integrity policy; however, the policy is not limited to these examples. Further discussion of consequences regarding academic dishonesty are addressed in the Student Handbook.

Plagiarism:

Plagiarism is using another person's words, either by paraphrase or direct quotation, without giving credit to the author(s). Plagiarism can also consist of cutting and pasting material from electronic sources by submitting all or a portion of work for assignment credit. This includes papers, computer programs, music, sculptures, paintings, photographs, etc. authored by another person without explicitly citing the original source(s). These actions violate the trust and honesty expected in academic work. Plagiarism is strictly against the academic policy of Midstate College. Its seriousness requires a measured, forceful response which includes consequences for inappropriate and/or no citation.

In courses containing writing assignments, the College promotes the use of Turnitin which compares the student's writing against previously submitted papers, journals, periodicals, books, and web pages. Students and instructors can use this service to reduce the incidence of plagiarism. This electronic resource has been found to conform

to legal requirements for fair use and student confidentiality. It is able to provide a report to the student indicating the parts of the assignment that match.

Student Success and Tutoring:

Contact Student Success:

Room 110; (309) 692-4092, ext. 1100; and studentsuccess@midstate.edu.

The Office of Student Success offers help in the following areas:

- Tutoring: Tutoring is encouraged for students who are doing their best to complete assignments yet still are experiencing difficulty in this course. Tutoring may be provided by the instructor outside of scheduled class times or through the office of Student Success.
- Writing assignment assistance: This may include learning how to conduct research; using proofreading tools such as Turnitin; outlining a topic; and applying MLA/APA standards.
- Math, accounting, and computer skills (including file management).
- Test-taking techniques.
- Note-taking skills development.
- Study skills development.
- Time management.

Policies and Procedures:

1. **Late Work:** Late work is not accepted and will result in a zero percent on any/all late assignments. Only in extreme extenuating circumstances will late work be accepted (and even in such circumstances, the student has the responsibility to notify the instructor in a timely manner and seek approval for extensions). Even if extensions are granted, late penalties in grading will still apply at the discretion of the instructor.
2. **All Writing Assignments:** Graduate-level writing is expected. This includes, but is not limited to papers, essays, projects, essay questions on exams, homework assignments, and summaries. These assignments will supplement the textbook, additional readings, and lectures to further your understanding and application of course material. Students may be asked to submit forums or written work online via Turnitin (our online plagiarism and grammar scanning software). All citations must be formatted using APA 6. Late papers will not be accepted (see above policy on late work). All writing must be typed, 12 pt. font, with 1" margins. Writing should pull on details from the course material and should be in your own words (see Academic Dishonesty below).
3. **Academic Dishonesty:** Material/information taken from ANY source, including the course textbook, should be cited appropriately. Cheating / plagiarism in any form will not be tolerated in this course and may result in the dismissal/suspension from the course/program/college. Do your own work. Not knowing the rules of plagiarism

is not a valid defense. Check with me or our numerous campus resources on academic integrity (i.e. Student Success, Library, etc.) if you are not clear on what constitutes plagiarism.

- 4. Syllabi Changes:** The instructor reserves the right to change this syllabus at any time. Students will receive timely notice of all such changes via announcements made online in Moodle Rooms and/or via email.

Participation Requirements:

In class: Students are expected to be in class during each on-campus session. Attendance is taken for each class session, and reported to the college. Likewise, students may receive credit for attending, and/or participating in, class. In the event of an absence, even if it was approved by the instructor in advance, the student will be marked absent and may lose any/all points associated with participation.

eLearning: In accordance with Midstate College policies, class material will be made available in our learning management system (Moodle Rooms) on Monday at 12:00 p.m. of each week and will remain available until the following Monday until 8:00 AM. This allows students one week to access the lecture and related material for that week's session, complete any assignments and/or assessments, and participate in the mandatory discussion and summary boards (see my discussion/summary requirements rubric in Moodle Rooms to ensure full credit in forums). Students must "submit substantial gradable work" in order to be marked as present for each week (see the Midstate eLearning policy on attendance in the student eLearning handbook). While each week extends from Monday at 12:00 PM to the following Monday at 8:00 AM, the instructor has the right to set due dates at their discretion within each week. For instance, your initial discussion posts are due Thursday nights by Midnight (further information is located on my discussion/summary rubric). Certain assignments, exams, and papers/projects may be due in the middle of the week at specified days and times.

Examination Information:

This class will include final project that will be worth 30% of the final grade. The final project will be comprehensive, as it will cover the higher levels of Bloom's Taxonomy and confirm the student's knowledge of the course content by addressing the course objectives.

Methods of Evaluating Student Performance:

At the MBA level, students will be graded on their performance through content submitted via discussion forums and individual assignments. Student performance will be evaluated with rubrics which are available to students at the beginning of the term.

Week by Week

Week 1

Topic(s): Introduction: Probability

Objective(s):

- | |
|--|
| 1. Diagnose, dissect, and improve complex business problems through quantitative analysis. |
| 2. Examine and explain the correlation between two or more variables. |
| 3. Make a recommendation about a problem based on data analysis results and conclusions drawn. |

Assignments:

Read Chapter 1

Getting Started Discussion Forum:

1. Provide a short introduction of yourself.
2. Explain your personal or professional experiences encountered that relate to the general topic(s) of the course.
3. Review course outcomes and state how the outcomes are relevant to your own professional experiences and interests.

Discussion Forum

Individual Assignment: Chapter 1 - Problems 10 and 11

Week 2

Topic(s): Probability Distributions

Objective(s):

- | |
|--|
| 1. Diagnose, dissect, and improve complex business problems through quantitative analysis. |
| 2. Examine and explain the correlation between two or more variables. |
| 3. Make a recommendation about a problem based on data analysis results and conclusions drawn. |

Assignments:

Read Chapter 2

Discussion Forum

Individual Assignment: Chapter 2 – Problems 15, 18, and 28

Week 3

Topic(s): Decision Analysis

Objective(s):

1. Diagnose, dissect, and improve complex business problems through quantitative analysis.
2. Examine and explain the correlation between two or more variables.
3. Make a recommendation about a problem based on data analysis results and conclusions drawn.
4. Design and assess methods for business planning through projections.

Assignments:

Read Chapter 3

Discussion Forum:

Individual Assignment: Chapter 3 – Problems 5 and 10

Week 4

Topic(s): Utility and Game Theory

Objective(s):

1. Diagnose, dissect, and improve complex business problems through quantitative analysis.
2. Examine and explain the correlation between two or more variables.
3. Make a recommendation about a problem based on data analysis results and conclusions drawn.
4. Design and assess methods for business planning through projections.

Assignments:

Read Chapter 4

Discussion Forum:

Individual Assignment: Chapter 4 – Problems 1 and 6

Week 5

Topic(s): Time Series Analysis and Forecasting

Objective(s):

- | |
|--|
| 1. Diagnose, dissect, and improve complex business problems through quantitative analysis. |
| 2. Examine and explain the correlation between two or more variables. |
| 3. Make a recommendation about a problem based on data analysis results and conclusions drawn. |
| 4. Design and assess methods for business planning through projections. |

Assignments:

Read Chapter 5

Discussion Forum:

Individual Assignment: Chapter 5- Problems 2 and 15

Week 6 – Midterm Week

Topic(s): Overview of Linear Programming

Objective(s):

- | |
|--|
| 1. Diagnose, dissect, and improve complex business problems through quantitative analysis. |
| 2. Examine and explain the correlation between two or more variables. |
| 3. Make a recommendation about a problem based on data analysis results and conclusions drawn. |
| 4. Design and assess methods for business planning through projections. |

Assignments:

Read Chapter 6

Discussion Forum:

**Midterm Exam (Problems and Short Answers)
The Midterm will cover Chapters 1 – 6.**

Week 7

Topic(s): Project Scheduling: PERT/CPM

Objective(s):

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|--|
| 1. Diagnose, dissect, and improve complex business problems through quantitative analysis. |
| 2. Examine and explain the correlation between two or more variables. |
| 3. Make a recommendation about a problem based on data analysis results and conclusions drawn. |
| 4. Design and assess methods for business planning through projections. |
| 5. Create models to understand how to improve business processes. |

Assignments:

Read Chapter 7

Discussion Forum:

Individual Assignment: Chapter 6 – Problem 11; Chapter 7 – Problem 28

Week 8

Topic(s): Inventory Models

Objective(s):

- | |
|--|
| 1. Diagnose, dissect, and improve complex business problems through quantitative analysis. |
| 2. Examine and explain the correlation between two or more variables. |
| 3. Make a recommendation about a problem based on data analysis results and conclusions drawn. |
| 4. Design and assess methods for business planning through projections. |
| 5. Create models to understand how to improve business processes. |

Assignments:

Read Chapter 8

Discussion Forum

Individual Assignment: Chapter 8 – Problems 8 and 14

Week 9

Topic(s): Waiting Line Models

Objective(s):

1. Diagnose, dissect, and improve complex business problems through quantitative analysis.
2. Examine and explain the correlation between two or more variables.
3. Make a recommendation about a problem based on data analysis results and conclusions drawn.
4. Design and assess methods for business planning through projections.
5. Create models to understand how to improve business processes.

Assignments:

Read Chapter 9

Discussion Forum

Individual Assignment: Chapter 9 – Problems 5 and 10

Week 10

Topic(s): Simulation

Objective(s):

1. Diagnose, dissect, and improve complex business problems through quantitative analysis.
2. Examine and explain the correlation between two or more variables.
3. Make a recommendation about a problem based on data analysis results and conclusions drawn.
4. Design and assess methods for business planning through projections.

Assignments:

Read Chapter 13

Discussion Forum

Individual Assignment: Chapter 13 – Problems 1, 2, and 12

Week 11

Topic(s): Markov Processes

Objective(s):

1. Diagnose, dissect, and improve complex business problems through quantitative analysis.
2. Examine and explain the correlation between two or more variables.
3. Make a recommendation about a problem based on data analysis results and conclusions drawn.
4. Design and assess methods for business planning through projections.

Assignments:

Read Chapter 14

Final Assignment Due

Discussion Forum

Individual Assignment: Chapter 14 – Problems 5 and 22

Week 12

Topic(s): Course Overview

Objective(s):

1. Diagnose, dissect, and improve complex business problems through quantitative analysis.
2. Examine and explain the correlation between two or more variables.
3. Make a recommendation about a problem based on data analysis results and conclusions drawn.
4. Design and assess methods for business planning through projections.

Assignments:

Read Chapter 15

Discussion Forum:

Individual Assignment: Chapter 15 – Problems 6 and 13

