



Course OPRE 6302/SYSM 6334.001 – Operations Management/
Systems Operations Management
Professor Sonia E. Leach, Ph.D., Clinical Professor
Term Spring 2025
Meetings Tuesday: 1:00 – 3:45PM; JSOM 1.217

STUDENTS ARE RESPONSIBLE FOR ALL INFORMATION CONTAINED IN THIS SYLLABUS.

PROFESSOR CONTACT INFORMATION

Office Phone 972-883-5845
Email Address sonia.leach@utdallas.edu
Office Location JSOM 3.229
Office Hours Office hours are available throughout the week by appointment. Office hours will be carried out using MS Teams. If you have an issue that requires personal attention not pertaining to other students in the course, please email me and I will return your message within one day to schedule an appointment time.

ABOUT THE INSTRUCTOR

Dr. Leach began her supply chain career in 1992 as a systems acquisition/procurement officer on active duty in the United States Air Force. After overseeing the development of several software systems, she transitioned to operations analysis and conducted large-scale simulations and statistical output analysis for improved military operations in support of U.S. Congressional budget decisions. Dr. Leach then worked in supply chain compliance for supplier relations, transportation, logistics, subcontractor performance and customer service for a world-wide retail organization. Dr. Leach joined UT Dallas in 2012 upon retirement from her 20-year active duty career in the United States Air Force and now holds the position of Clinical Professor. Dr. Leach maintains relationships with several supply chain professional organizations and has actively interacted with supply chain professionals for the past ten years while directing the Industry Mentor Program for UTD MS SCM students. Her teaching expertise includes probability and statistics, operations management, global supply chain management, spreadsheet modeling and analytics, and project management. Dr. Leach has earned a BS in Mathematics from The Pennsylvania State University, a MS in Operations Research from the Air Force Institute of Technology and a Ph.D. in Industrial Engineering from Arizona State University.

TA INFORMATION

Name, contact information, and office hours are posted on eLearning.

COURSE MODALITY

| | |
|---------------------------|-------------------------------|
| Instructional Mode | Online, asynchronous lectures |
| Course Platform | eLearning |

CO-REQUISITE

OPRE 6301, knowledge of calculus and probability, or consent of the instructor.

COURSE DESCRIPTION

Operations Management (OM): Management of the efficient transformation of inputs into outputs to suitably satisfy customers. Inputs are materials, labor, capital and management. Outputs are products or services that customers want and pay for. The course provides an introduction to the operations and

the related management concepts. The level of discussion varies from strategic to daily control of business processes.

LEARNING OUTCOMES AND EXPECTATIONS

Upon completion of the course, the student should be able to determine performance measures of manufacturing/service processes/systems in key operational dimensions. The student should also know what factors affect these measures, how these measures can be calculated and how these measures can be improved. More specific objectives include:

1. Describe and explain services, manufacturing, just in time, and total quality management strategies.
2. Derive and compute optimal decisions and performance measures, such as costs and profits.
3. Develop analytical thinking for operations practices.

REQUIRED TEXT/MATERIAL

1. ***Matching Supply with Demand: An Introduction to Operations Management (5th Edition)***, by Gerard Cachon and Christian Terwiesch, ISBN: 978-1260716276.
2. ***The Goal: A Process of Ongoing Improvement (4th Edition – 30th Anniversary Edition)***, by Eliyahu M. Goldratt and Jeff Cox, ISBN: 978-0884271956.

The book *The Goal* has been chosen as a reading to accompany your textbook. This is a self-paced reading to be completed prior to week 12 of the Course Calendar below. This book is a relatively quick read, but you may want to read the book more than once. *The Goal* has been a perennial bestselling business book since its first publication in 1984. While there have been numerous business books written since *The Goal* was first published, it remains the preeminent book on the specific impact that operations management has on business success. This book is written as a novel, allowing the authors to use both personal and professional interactions and observations by the main character to demonstrate essential operations management methodologies. *The Goal* can still be found on the shelves of business executives today, and is likely one of the few business books that they've actually read cover to cover.

Textbooks and some other bookstore materials can be ordered online or purchased at the [UT Dallas Bookstore](#).

TECHNICAL REQUIREMENTS

Please review the important technical requirements on the [Getting Started with eLearning](#) webpage. You are expected to possess a confident level of computer and Internet literacy for this course.

A computer and Microsoft Excel are required for this class.

The Microsoft Excel mathematical modeling tool called Solver is an Add-in that comes with Excel. You are not required to purchase this Add-In.

To activate the Solver Add-In:

- **Window-based computer:** open MS Excel, click on File, click on Options, click on Add-ins, then at the bottom of the window you will see a drop-down menu that is set on Excel Add-ins. Click on Go, put a checkmark in the box next to Solver, and click on OK. The Solver command will now be visible in the Data ribbon under the Analysis group on the far right of the toolbar.
- **Apple/Macintosh computer:** open MS Excel, click on Tools in the top menu, then click on Excel Add-Ins.... Put a checkmark in the box next to Solver and click on OK. The Solver command will now be visible in the Data ribbon on the far right of the toolbar.

MS Excel REQUIRED – no calculators or scratch paper allowed on problem sets or exams: You are required to use MS Excel as a data analysis tool. Use of MS Excel means that you must learn and demonstrate the data analysis capabilities of MS Excel. This means you are required to perform your calculations on every problem set and every exam using the MS Excel calculation tools. It will not be

sufficient for you to use a calculator and then capture your calculator calculations in MS Excel as if it is a word processing tool. In addition, all of the provided resources and datasets used in the course are MS Excel files, and you will be required to upload your solution files on the problem sets and exams. If you are not very familiar with MS Excel, I have recorded an Excel Basics video tutorial. It is located with the first lesson folder in Module 1. I recommend you view and practice with this video prior to getting started with the lectures. Instructions and demonstrations on how to use Excel for the purposes of solving problem types covered in this course will be provided for the appropriate lectures.

COURSE ACCESS AND NAVIGATION

This course can be accessed using your UT Dallas NetID account on the [eLearning](#) website. Please see the course access and navigation section of the [Getting Started with eLearning](#) webpage for more information. To become familiar with the eLearning tool, please see the [Student eLearning Tutorials](#) webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The [eLearning Support Center](#) includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

ELEARNING COURSE RESOURCES

Materials you need for the course have been posted to eLearning. These include:

- Lecture videos and PowerPoint slides (in .pptx and .pdf format)
- List of recommended practice problems for each lesson
- Data files for lecture examples and all textbook problems
- Formula sheet for each exam
- Supplemental readings and videos for each lesson
- Solutions for all textbook problems
- Sample exam questions and answers

COURSE CALENDAR

| Module 1 | Process Analysis |
|---------------------------------|--|
| Week 1 | Week of Monday, January 20 |
| Class lecture | Tues, Jan 21, 1-3:45PM, JSOM 1.217 |
| Lecture Topics | Course Overview and Syllabus Review Introduction |
| Textbook Reading | Chapter 1 |
| Graded Assignment Release | Module 1 Problem Set available on Tues, Jan 21. Due in Week 4. |
| Week 2 | Week of Monday, January 27 |
| Class lecture | Tues, Jan 28, 1-3:45PM, JSOM 1.217 |
| Lecture Topic | The Process View of the Organization |
| Textbook Reading | Chapter 2 |
| Recommended Practice Problems | 2.1 – 2.4, 2.6 – 2.8, 2.10, 2.12 |
| Week 3 | Week of Monday, February 3 |
| Class lecture | Tues, Feb 4, 1-3:45PM, JSOM 1.217 |
| Lecture Topic | Process Capacity |
| Textbook Reading | Chapter 3 |
| Recommended Practice Problems | 3.1, 3.2, 3.5 – 3.8 |
| Week 4 | Week of Monday, February 10 |
| Class lecture | Tues, Feb 11, 1-3:45PM, JSOM 1.217 |
| Lecture Topics | Labor Costs Operations and Finance |
| Textbook Readings | Chapters 4, 6 |
| Recommended Practice Problems | 4.1 – 4.5, 4.8, 6.1, 6.2 |
| <u>Graded Assignment</u> | <u>Module 1 Problem Set</u> due via eLearning by Fri, Feb 14 at 11:59PM. |
| Week 5 | Week of Monday, February 17 |
| No class lecture | Exam week |
| <u>Graded Assessment</u> | <u>Module 1 Exam:</u> (2 hours) Tues, Feb 18 to Thurs, Feb 20 at the UTD Testing Center. |

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| Module 2 | Setups, Quality and Waiting |
| The learning module will be available on eLearning on Mon, Feb 24. | |
| Week 6 | Week of Monday, February 24 |
| Class lecture | Tues, Feb 25, 1-3:45PM, JSOM 1.217 |
| Lecture Topic | Batching |
| Textbook Reading | Chapter 5 |
| Recommended Practice Problems | 5.1, 5.2, 5.4, 5.5, 5.10 – 5.13 |
| Graded Assessment Release | Module 2 Problem Set available on Mon, Feb 24. Due in Week 10. |
| Week 7 | Week of Monday, March 3 |
| Class lecture | Tues, Mar 4, 1-3:45PM, JSOM 1.217 |
| Lecture Topic | Quality and Statistical Process Control |
| Textbook Reading | Chapter 7 |
| Recommended Practice Problems | 7.1 – 7.3, 7.6 |
| Week 8 | Week of Monday, March 10 |
| Class lecture | Tues, Mar 11, 1-3:45PM, JSOM 1.217 |
| Lecture Topics | Lean and the Toyota Production System (TPS) |
| Textbook Reading | Chapter 8 |
| Recommended Practice Problems | 8.1 – 8.3 |
| Week 9 | Week of Monday, March 17 |
| No class lecture | SPRING BREAK |
| Week 10 | Week of Monday, March 24 |
| Class lecture | Tues, Mar 25, 1-3:45PM, JSOM 1.217 |
| Lecture Topic | Waiting Time Throughput Losses |
| Textbook Readings | Chapters 9, 10 |
| Recommended Practice Problems | 9.1 – 9.5, 9.9, 10.1 – 10.3, 10.6 |
| Graded Assessment | Module 2 Problem Set due via eLearning by Fri, Mar 28 at 11:59PM. |
| Week 11 | Week of Monday, March 31 |
| No class lecture | Exam week |
| Graded Assessment | Module 2 Exam: (2 hours) Tues, April 1 – Thurs, April 3 at the UTD Testing Center. |

| Module 3 | | Project Management, Linear Programming and Inventory | |
|---|--|---|--|
| The learning module will be available on eLearning on Mon, Apr 7. | | | |
| Week 12 | | Week of Monday, April 7 | |
| Class lecture | Tues, Apr 8, 1-3:45PM, JSOM 1.217 | | |
| Lecture Topic | Project Management | | |
| Textbook Reading | Chapter 12 | | |
| Recommended Practice Problems | 12.1, 12.3 | | |
| Graded Assessment Release | Module 3 Problem Set available on Mon, Apr 7. Due in Week 15. | | |
| Week 13 | | Week of Monday, April 14 | |
| Class lecture | Tues, Apr 15, 1-3:45PM, JSOM 1.217 | | |
| Lecture Topic | Linear Programming "The Goal" lecture video (view on eLearning) | | |
| Reading | LP Supplement (provided on eLearning) | | |
| Recommended Practice Problems | 19, 22, 1, 2, 3, 6, 9, 15, 18 Note: Solve problems 19 and 22 first and use a computer to solve these problems despite the instructions. | | |
| Graded Assessment | "The Goal" Quiz: (45 minutes) Thurs, Apr 17 to Sat, Apr 19 at the UTD Testing Center. | | |
| Week 14 | | Week of Monday, April 21 | |
| Class lecture | Tues, Apr 22, 1-3:45PM, JSOM 1.217 | | |
| Lecture Topic | Newsvendor Model and Mismatch Cost | | |
| Textbook Readings | Chapters 14, 15 | | |
| Recommended Practice Problems | 14.1 – 14.3, 14.5 – 14.8, 15.1 – 15.4, 15.9 | | |
| Week 15 | | Week of Monday, April 28 | |
| Class lecture | Tues, Apr 29, 1-3:45PM, JSOM 1.217 | | |
| Lecture Topics | Order-up-to-Model | | |
| Textbook Reading | Chapter 16 | | |
| Recommended Practice Problems | 16.1 – 16.7 | | |
| Graded Assessment | Module 3 Problem Set due via eLearning by Fri, May 2 at 11:59PM. | | |
| Week 16 | | Week of Monday, May 5 | |
| No class lecture | Exam week | | |
| Graded Assessment | Module 3 Exam: (2 hours) Tues, May 6 to Thurs, May 8 at the UTD Testing Center. | | |

GRADING POLICIES

GRADING CRITERIA

| Assessment Activity | Weight |
|---------------------------|-------------|
| Problem Sets (3@10% each) | 30% |
| Module 1 Exam | 20% |
| Module 2 Exam | 20% |
| Module 3 Exam | 20% |
| "The Goal" Quiz | 10% |
| TOTAL | 100% |

LETTER GRADES

| Weighted Average | Course Letter Grade |
|------------------|---------------------|
| ≥ 93 | A |
| 90 - 92.9 | A- |
| 87 - 89.9 | B+ |
| 83 - 86.9 | B |
| 80 - 82.9 | B- |
| 77 - 79.9 | C+ |
| 70 - 76.9 | C |
| < 70 | F |

A C grade is the lowest passing grade in a graduate-level course. Undergraduates taking this course will be subject to the same grading policy as graduate students.

ACCESSING GRADES

Students can check their grades by clicking My Grades under Course Tools after the grade for each assessment is released.

COURSE POLICIES

ACADEMIC INTEGRITY QUIZ

In order to access the course content on eLearning, you must complete and score a 100% (10/10) on the Academic Integrity Quiz. This quiz does not contribute to your course grade.

GRADED ASSESSMENTS

Your calculation work on all problem sets and exams must be performed using MS Excel. as an analysis tool. Calculations typed in as text (e.g. "The capacity is $4/(2*4) = 0.5$ ") will not be accepted and will receive zero (0) points. You must perform this calculation using the analysis capabilities/tools in MS Excel. All MS Excel analysis capabilities/tools required for this course are presented in the course lectures. If you need additional explanation regarding this requirement, please contact the instructor.

All of your work on problem sets and exams must be submitted in an MS Excel file.

- The first question on each problem set is reserved for you to upload one (1) MS Excel file containing all of the work you accomplished for that problem set. You must consolidate all of your work into a single MS Excel file.
- Each exam will have a randomly positioned question for you to upload one (1) Excel file containing all of the work required for that exam. You must consolidate all of your work into a single MS Excel file. Questions requiring you to show your work/calculations are clearly marked.

If you need assistance on how to consolidate your work to a single file, please contact the instructor.

PROBLEM SETS

There are three (3) problem sets in this course. The problem sets will require you to demonstrate your understanding of the concepts presented in the associated lessons.

See the Course Calendar for the due dates of the problem sets.

MS Excel is required to be used on all questions on all problem sets.

The value of each problem set is given in the table above.

You may discuss problem set questions with other students in the course, but you must create and submit your own work for grading. Work that is copied from another student is an act of academic dishonesty and all students involved will be referred to the Office of Community Standard and Conduct (OCSC) for disciplinary action.

EXAMS/QUIZ

Three (3) exams will be given in this course. The exams will require you to demonstrate your understanding of the concepts presented in the associated learning Module.

One (1) quiz will require you to demonstrate your comprehension of the concepts related to you in the required Goldratt book, *The Goal*.

All exams must be taken at the UTD Testing Center in Synergy Park North Two during the designated timeframe given for each exam. You must reserve a seat for each exam at least 48 hours in advance of each exam at <http://registerblast.com/utdallas/exam>.

Students who fail to reserve their seats at least 48 hours in advance and require special scheduling will receive a 2.5 point deduction on their exam grade. This includes students who wait to reserve their seat and find no exam times remaining, or are turned away for not being in compliance with the UTD Testing Center Testing Guidelines, which can be found here: <https://ets.utdallas.edu/testing-center/students/>. For this reason, you are encouraged to reserve your exam time for all three exams immediately at the beginning of the semester. You may always change your seat reservation at a later time.

You will have two (2) hours to complete each exam.

You will have 30 minutes to complete the quiz.

All exams and the quiz are closed book, closed notes.

A formula sheet relevant to the material being tested will be provided for each exam. The formula sheets are available for preview in each learning module folder on eLearning.

You are required to use MS Excel on all exams. **Handheld calculators and scratch paper are not allowed on any exam.**

See the Course Calendar for the date and time for each exam and the quiz.

The weightings of each exam and the quiz are given in the table above.

To access your exam or quiz, go to the eLearning course homepage and click on the folder titled "Exams/Quiz." Next, click on the link for the appropriate exam or quiz. The link for an exam or quiz will only be visible during the designated exam window posted on the Course Calendar above in this syllabus. The link for each exam or quiz will remain visible even once you have completed your exam or quiz, but eLearning will only allow you to enter and take each exam or quiz once. If the exam or quiz link is not available, you are trying to access it outside the designated time window. Please refer to the Help menu for more information on completing exams using eLearning.

Your grade for each exam and quiz will be available in My Grades in eLearning after all students have completed the exam or quiz and have been reviewed and released by your instructor. Prior to this happening, you may not see your exam or quiz listed in My Grades in eLearning – this is normal even if you have completed and submitted your assessment. You will receive an emailed course announcement once the instructor has released the grades. Once released, your grade will be visible in My Grades in eLearning.

To view your exam, click on My Grades, click on the name of the exam or quiz, then click on your score. Please note the points awarded for each question, and not just the correct/incorrect marking, as your grade may have been overridden by the instructor during the review. Questions regarding a graded exam or quiz must be submitted by email. A response to your inquiry will be emailed and may include comments typed within the Feedback section of your exam or quiz question.

Testable materials for the exams include: lecture, assigned chapter readings, supplemental readings in eLearning, and posted videos in eLearning.

The Module 1 Exam will consist of a combination of multiple-choice, true-false and/or problem solving.

The Module 2 Exam will consist of a combination of multiple-choice, true-false and/or problem solving. It will be assumed that the student has cumulative knowledge from Module 1 material.

The Module 3 Exam will consist of a combination of multiple-choice, true-false and/or problem solving. It will be assumed that the student has cumulative knowledge from Module 1 and 2 material.

Testable materials for the quiz include: concepts presented in the book “*The Goal*.” The fictional content of the book will not be tested, however questions may assume you know the names of the main characters.

The quiz consists of 10 multiple choice and true/false questions, and each question is worth 10 points.

REVIEW PERIOD

After returning an assessment, students have 7-days (5-business days) to question the grade.

RESCHEDULED EXAMS

A reschedule exam will be provided to any student who has a conflict with or an illness during a scheduled exam. Please contact the instructor via email as soon as you are able prior to the scheduled exam date to arrange for a rescheduled exam.

MAKEUP EXAMS

Multiple opportunities to take the same exam are not allowed. Only one attempt is allowed per exam. **Makeup examinations will NOT be offered for this course under any circumstances.**

Note: The UTD Testing Center refers to Makeup exams as those given on alternate test dates from the original class schedule. These are not second opportunities for a student to take an exam.

LATE WORK

If you need to miss a problem set deadline, you must request an extension from the instructor before the deadline. You should provide the reason for missing the deadline and an alternate date for submitting the problem set. The instructor must approve the extension and the new due date. If you do not notify the instructor in advance, your problem set grade will be reduced by 10 points for each day (or portion of a day) your submission is late.

ADDITIONAL INFORMATION

Extra credit will NOT be offered for this course under any circumstances.

COMMUNICATION

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the [Student eLearning Tutorials](#) webpage for video demonstrations on eLearning tools.

In addition to class meetings, a Discussion Board in eLearning is available for discussions with the instructor and your classmates. You are asked to review the Discussion Board several times per week to provide responses to your classmates and to stay up-to-date on topics of discussion. If you are

having difficulty with a course topic or specific recommended practice problem, please check the Discussion Board first to see if your question has already been addressed. The instructor and course TA will also be reviewing all Discussion Board posts and will provide responses when/if a student does not provide a correct response.

Questions about specific course topics or recommended practice problems should be posted on the Discussion Board in the appropriate Module thread. Questions about general administration of the course should be posted to the thread titled “Course administration questions for Dr. Leach.”

While emails sent directly to the instructor or course TA will be answered, you are encouraged to post your questions about course content to the Discussion Board so that your question and its answer will benefit all students taking the class.

Please send questions personal to you or regarding an exam by email to the instructor or course TA, and do not post these on the Discussion Board.

Under normal circumstances, student emails and Discussion Board messages will be answered within 2 working days.

DISTANCE LEARNING STUDENT RESOURCES

Online students have access to resources including the McDermott Library, Academic Advising, The AccessAbility Resource Center, and many others. Please see the [eLearning Current Students](#) webpage for more information.

SERVER UNAVAILABILITY OR OTHER TECHNICAL DIFFICULTIES

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online [eLearning Help Desk](#). The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

COURSE/UNIVERSITY POLICIES

ACCESSIBILITY ACCOMMODATIONS

It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the AccessAbility Resource Center (ARC) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow one-week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact the ARC for a confidential discussion. ARC is located in the Student Services Building, suite 3.200. They can be reached by phone at (972) 883-2098, or by email at studentaccess@utdallas.edu.

CLASS MATERIALS

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved AccessAbility Resource Center accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

CLASS ATTENDANCE

The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes.

CLASS PARTICIPATION

Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. It also includes engaging in group or other activities during class that solicit your feedback on homework problem sets, readings, or materials covered in the lectures (and/or labs). Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

CLASS RECORDINGS

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures.

Unless the AccessAbility Resource Center has approved the student to record the instruction, students are expressly prohibited from recording any part of this course.

Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved AccessAbility Resource Center accommodation. Failure to comply with these University requirements is a violation of the [Student Code of Conduct](#).

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

COMET CREED

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

ACADEMIC SUPPORT RESOURCES

The information contained in the following link lists the University's academic support resources for all students. Please see <http://go.utdallas.edu/academic-support-resources>.

UT DALLAS SYLLABUS POLICIES AND PROCEDURES

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please review the catalog sections regarding the credit/no credit or pass/fail grading option and withdrawal from class. Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

THE DESCRIPTIONS AND TIMELINES CONTAINED IN THIS SYLLABUS ARE SUBJECT TO CHANGE AT THE DISCRETION OF THE PROFESSOR.