Course Description

Collection, description and analysis of numerical data. Data presentation, tables, charts and graphs, descriptive statistics, analysis of time series and index numbers, sampling techniques and distributions, estimation, confidence intervals, with applications in quality control and productivity.

Prerequisites

Prerequisite(s): Must have completed two years of high school algebra and one year of geometry and be eligible for college level math course.

Course Objectives

At the end of the course, you should:
1. Have an increased appreciation for the use of statistics in business decision making,

2. Be better able to select the appropriate statistical tool/methodology to aid in business decision making,

3. Be able to use a computer spreadsheet program such as Excel to describe and analyze numerical data,

4. Be better able to communicate in the language of applied business statistics,

5. Have acquired a more positive attitude towards business statistics,

6. Be able to manipulate simple statistical formulae to solve non-verbal (numerical) problems,

7. Have an enhanced ability to follow directions and instructions,

8. Have a much better vision of how analytics are used in analysis and business decisions,

9. Understand more about job/career potential of analytics, project design and Decision Sciences.

Required Courseware & Materials


The software access code is required to complete the assignments (HLS Modules). If you took DSCI 2710 previously and have an access code for the above product, then you can reuse it.

If you need to purchase access, you may do so either from the UNT bookstore or through your Hawkes account. To purchase through Hawkes, simply click the Hawkes Learning link in Canvas and click the Activate button on your dashboard.

Software access includes the eBook. Hardbound book not required.

For a full tutorial of the Hawkes website, please watch the following video: http://tv.hawkeslearning.com/VideoPlayerSingle.htm?PlayerID=5062857235001
For any questions or technical issues with the Hawkes courseware, please reach out directly to their Tech Support Team via LiveChat http://chat.hawkeslearning.com or phone (1-800-426-9538) (M-F 7am-9pm CST)

- **Canvas** (https://unt.instructure.com/login/ldap): The lecture notes, Excel case files, Case quizzes, all of the exams and other material will be posted on Canvas so please make sure you keep up and check Canvas often.

- **Microsoft Excel**, installed in computer labs and available to download (Office 365) at https://aits.unt.edu/support/office365apps.

  *IF YOU ARE LESS FAMILIAR WITH EXCEL:*

  Any Excel Primer – Any Excel reference that covers material similar to our BCIS 2610 course. Also any youtube video about spreadsheet basics should work.

- **Course websites**: You will be using Hawkes Learning materials for this course. To access Hawkes, click the Hawkes Single Sign On link in the Hawkes Learning Module through Canvas.

### Course Structure

1. You are encouraged to pay attention to commercials and news items in printed as well as audio-visual media to become aware of the wide use of statistics in our daily lives. To better assist you in understanding the use of these methodologies in business many of the class problems will be presented as simple business cases.

2. You should **study** the material in the PowerPoint slides. You are strongly encouraged to try to independently solve the problems included in the lecture slides, not simply verify that the provided solutions “make sense”.

3. You should **work** on the homework assignments (HLS lessons and Excel case studies). The case studies and the Hawkes Learning lessons are intended to assist you in better structuring the learning time you spend on mastering the course material. Exam questions will mostly refer to these assigned exercises. The best way to prepare for exams is to go over the practice exams posted on Canvas.

4. **Doing the assignments is essential for success in this course.** In fact, the assignments constitute a large portion of your grade in this course. You are encouraged to keep up with the homework and meet the submission deadlines.

5. You should not hesitate to ask questions to me, (the professor, Dr. Palao) or the teaching assistant. I will try to keep a FAQ section on Canvas for commonly asked questions. Usually someone else has the same question, so, when you ask a question, others can benefit from the question. Since we do meet in person in class, such questions are automatically available to everyone in the classroom.

6. Regular monitoring of the course material posted on Canvas is expected. There will be no make-up if you miss any of the mid-term exams, unless you have a University-approved excuse. Whenever applicable, such an excuse is to be provided to the instructor in writing, as early as possible.
7. You have the final responsibility for seeing that you properly withdraw before the scheduled last drop day, in case you wish to withdraw from/drop the course. If you stop attending class, you should execute the drop procedure since failure to do so will result in a grade of “F” which cannot be changed.

**Evaluation**

To demonstrate your ability to use quantitative techniques in business, you will be evaluated on a number of homework assignments, Excel case studies, and exam questions. Rather than being purely numerical, exam and case problems will be presented in word format. Many Hawkes Learning (HLS) lesson assignments will also be presented in word format. You will work on Excel case studies that require you to use an Excel spreadsheet to analyze and describe real-world business data. By simulating real business problems and using the language of statistics, these evaluation instruments will reinforce the course objectives.

- **Exam 1** 150 pts
- **Exam 2** 150 pts
- **Exam 3** 150 pts
- **(Lowest of exams 1, 2, 3, will be dropped )** -150 pts
- **Final exam (cumulative)** 200 pts
- **HLS Lessons (Hawkes Learning)** 400 pts (20 points each)
- **Excel Case Quizzes** 100 pts (25 points each)

**TOTAL** 1,000 points

- **Exams 1, 2, and 3 and Final**: All exams will be available on Canvas. The lowest grade of Exams 1, 2, 3 will be dropped. For each of these exams you will be given a short period of time (typically about 75 minutes), in which you will need to be ready to take the timed exam at class time. The Final Exam is comprehensive and it is expected to be completed in max 120 minutes.

- **HLS Lessons**: Homework using the Hawkes Learning: Discovering Business Statistics is assigned. The due dates for the HLS lessons are listed on this syllabus. These form a significant part of the course grade and must be completed by the due date to receive full credit as well as bonus points (two extra credit points per module). Late tutorial submissions still receive full credit, provided they are completed by the end of day on May 13th, 2022; however, no bonus points are earned. No credit is awarded for any tutorial exercise completed after this date.

- **Excel Case Quizzes**: Projects involving the use of Excel to analyze business data are assigned. These are an important part of the course grade. For each case assignment, a data set will be provided. These case assignments will use Excel; I will post on Canvas the instructions for each Case two weeks in advance to their due dates. I will use an online quiz
on Canvas for each case to verify your Excel case comprehension and apply your score on that quiz as your case score.

- **Grading**: The 20 HLS lessons are worth a total of 400 points (@ 20 points each); The 4 Excel case assignments are worth a total of 100 points (@25 pts. each); The three mid-term exams are worth a total of 300 points (@150 each, with the lowest grade of the three dropped), and the comprehensive final is worth 200 points.

- **Letter Grades**: If you achieve the following thresholds, you are guaranteed to receive the letter grade listed next to them:

  \[\begin{align*}
  \geq 900 \text{ points (or } \geq 90\%) & \rightarrow A \\
  \geq 800 \text{ points (or } \geq 80\%) & \rightarrow B \\
  \geq 700 \text{ points (or } \geq 70\%) & \rightarrow C \\
  \geq 600 \text{ points (or } \geq 60\%) & \rightarrow D \\
  < 600 \text{ points (or } < 60\%) & \rightarrow F
  \end{align*}\]

- **Extra Credit**: Each HLS Tutorial that you finish on time earns you 2 extra credit points. That means a student who finishes all tutorials on time will receive 40 points in addition to the 400 points for homework.

These extra credit points are added to your total but the maximum score is still out of 1,000 points.

**Department, College(s) and other Policies**

- **COMPLAINTS**: If you wish to register a complaint, you should first discuss your complaint with your instructor. If you wish to carry it further, contact Dr. Arunchalam Narayanan (the course coordinator) and then the ITDS Department Chair Dr. Leon Kappelman, but only after first discussing it with your instructor.

- **EXAMS**: You are required to take all exams, unless a written medical or other UNT-approved excuse is provided. In that case, you should discuss the alternative arrangements with your instructor. As a general rule, the course format does not allow make-up exams.

- **ACADEMIC INTEGRITY**: This course adheres to the UNT policy on academic integrity. The policy can be found at [https://vpaa.unt.edu/fs/resources/academic/integrity](https://vpaa.unt.edu/fs/resources/academic/integrity). If you engage in academic dishonesty you will receive a failing grade on the test or assignment, or a failing grade in the course. In addition, the case may be reported to the UNT Dean of Students/Academic Integrity Office, which maintains a database of related violations. Students are expected to read [https://policy.unt.edu/policy/06-003](https://policy.unt.edu/policy/06-003) UNT’s Student Standards of Academic Integrity with defines academic dishonesty and sets out the consequences of unethical behavior.
• STUDENTS WITH DISABILITIES: The College of Business and the New College complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disability. If you have an established disability you should register with the Office for Disability Accommodation (ODA) and receive further instructions. Please see your instructor as soon as possible if you have any questions.

• DEADLINES: Dates of drop deadlines, final exams, etc., are published in the university catalog and the schedule of classes. Please be sure you keep informed about these dates.

• SPOT: The Student Perceptions of Teaching (SPOT) is a requirement for all organized classes at UNT. This short Web-based survey will be made available to you at the end of the semester/session, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider SPOT to be an important part of your participation in this class.

• INCOMPLETE GRADE (I): The grade of “I” is not given except for rare and very unusual emergencies, as per University guidelines. An “I” grade cannot be used to substitute your poor performance in class. If you won’t be able to pass, please drop the course.

• CAMPUS CLOSING: In the event of an official campus closing, please check your UNT e-mail for instructions on how to turn in assignments, how the due dates are modified, etc.

Schedule and weekly learning goals

The description and timelines contained in the syllabus are subject to change at Professor’s discretion based on the group learning’s pace or other events that may impact the current schedule.

It is meant to be a guide and several items are subject to change. Exams may be moved in time & will be announced. I STRONGLY recommend that you adhere to the schedule below. This way, you should progress at a reasonable, sustainable pace. You will also be able to keep up with the Homework deadlines and Quiz and Exam dates.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics &amp; Section in Text</th>
<th>Dues HLS Lessons, Quiz Cases, &amp; Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>24 Jan</td>
<td>Course Syllabus L.0 Introduction to Statistics: Ch. 1.1 thru 1.4 L.1 Levels of measurement: Ch. 2.5</td>
<td>Obtain access code from Hawkes HLS-1: 2.5 - 2.6</td>
</tr>
<tr>
<td>Week 2</td>
<td>31 Jan</td>
<td>L.2 Organizing, Displaying &amp; Interpreting Data: Ch. 3.1 thru 3.7 Frequency Distributions: Ch. 3.1</td>
<td>HLS-2: 3.3 HLS-3: 3.5 - 3.9</td>
</tr>
<tr>
<td>Week 3</td>
<td>7 Feb</td>
<td>L.2 &amp; L.3 Descriptive Measures: Measures of Location: Ch. 4.1 L.4 Descriptive Measures cont: Measures of Dispersion: Ch. 4.2 - 4.3, 4.5</td>
<td>HLS-4: 4.1 HLS-5: 4.2a Case 1 Quiz Out</td>
</tr>
<tr>
<td>Week 4</td>
<td>14 Feb</td>
<td>L.5 Constructing Samples</td>
<td>HLS-6: 4.2b</td>
</tr>
<tr>
<td></td>
<td>20 Feb</td>
<td>Last day to submit Case 1 Quiz.</td>
<td>Last day to submit HLS-1 - HLS-6 to earn extra-credit.</td>
</tr>
<tr>
<td>Week 5</td>
<td>21 Feb</td>
<td><strong>Exam 1. First part of the class</strong></td>
<td>HLS-7: 5.1 - 5.2</td>
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<td></td>
<td></td>
<td>L.6 Probability, Randomness &amp; Uncertainty: Ch. 5.1 thru 5.6 (See Summary pp. 275 - 277)</td>
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<tr>
<td>Week 6</td>
<td>28 Feb</td>
<td>L.7 The Discrete Prob. Distribution: Ch. 6.1 thru 6.3 L.8 The Binomial Distribution: Ch. 6.5</td>
<td>HLS-8: 6.1 - 6.3 HLS-9: 6.5</td>
</tr>
<tr>
<td>Week 7</td>
<td>7 Mar</td>
<td>L.9 The Poisson Distribution: Ch. 6.6 L.10 Continuous Random Variables: Ch. 7.2 – 7.3</td>
<td>HLS-10: 6.6 HLS-11: 7.3a Case 2 Quiz Out</td>
</tr>
<tr>
<td>Week 8</td>
<td>14 Mar</td>
<td><strong>NO CLASS!</strong></td>
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<td>SPRING BREAK! (University closed)</td>
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<tr>
<td>Week 9</td>
<td>21 Mar</td>
<td>L.11 Continuous Random Variables: The Normal Distribution</td>
<td>HLS-12: 7.3b</td>
</tr>
<tr>
<td></td>
<td>27 Mar</td>
<td>Last day to submit Case 2 Quiz.</td>
<td>Last day to submit HLS-8 - HLS-12 to earn extra-credit.</td>
</tr>
</tbody>
</table>
## Schedule and weekly learning goals

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<td></td>
<td><strong>Exam 2. First part of the class</strong></td>
<td></td>
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</tbody>
</table>
| Week 10| 28 Mar     | **L.12** Continuous Random Variables<br>Finding the value of z<br>**L.13** Samples & Sampling Distributions: Ch. 8.1 – 8.3<br>The Distribution of the Sample Mean | HLS-13: 7.3c  
HLS-14: 8.3    |
| Week 11| 4 Apr      | **L.14** Estimating Means: Single Samples: (σ Known): Ch. 9.1 – 9.3<br>Interval Estimation of Pop. Mean, σ Known | HLS-15: 9.1 - 9.3  
Case 3 Quiz Out |
| Week 12| 11 Apr     | **L.15** Estimating Means: Single Samples: (σ Unknown): Ch. 9.4<br>Interval Estimation of Pop. Mean, σ Unknown | HLS-16: 9.4b |
|        | 17 Apr     | Last day to submit Case 3 Quiz. <br>Last day to submit HLS-13 - HLS-16 to earn extra-credit. |                                        |
| Week 13| 18 Apr     | **Exam 3. First part of the class**                                                       |                                        |
| Week 14| 25 Apr     | **L.16 & L.17** Monitoring with an x-Bar & R Charts: Ch. 17.3<br>Monitoring with an R Chart<br>Monitoring with an x-Bar Chart | HLS-17: 17.3b  
HLS-18: 17.3a |
| Week 15| 2 May      | **L.18** Monitoring with a p-Chart: Ch. 17.4                                             | HLS-19: 17.4  
Case 4 Quiz Out |
|        | 8 May      | Last day to submit Case 4 Quiz. <br>Last day to submit HLS-17 - HLS-20 to earn extra-credit. |                                        |
| Week 16| 9 May      | **Finals Week**<br>**FINAL EXAM**<br>**Scheduled at regular class time**                 |                                        |
|        | 13 May     | Last day to submit all HLS lessons. <br>No bonus points earned but still receive full credit. |                                        |
Policies, procedures and standard practices in response to COVID-19

- Faculty, students and staff are encouraged to wear a face covering indoors, get vaccinated, and continue to monitor their health to help keep our UNT community safe and healthy.

- Classrooms will be equipped with a camouflage bucket with sanitizing spray. Students may continue to use these cleaning supplies to sanitize their classroom space when they arrive. Supplies will be replenished nightly by custodial staff.

- Students are expected to attend class meetings regularly, even though attendance will not be graded. It is important that you communicate with me, the professor, prior to being absent, so you and I can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform me if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community. If you are experiencing any symptoms of COVID-19 please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Team at COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

- UNT encourages everyone to wear a face covering when indoors, regardless of vaccination status, to protect yourself and others from COVID infection, as recommended by current CDC guidelines. Face covering guidelines could change based on community health conditions.