



## FCS 3210-001: FCS Statistics (Credit Hours: 4)

Instructor: Hyeon Kim

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Course Webpage: [on Canvas](#)

Class: On-line

Office Hours: by appointment

**Course Description:** This course is intended to introduce the student to the statistical foundations - thinking (and/or reasoning) and techniques - at the introductory level. Specifically, it includes distribution, probability and statistical inference based on the following topics: (random) variables and descriptive statistics, probability distributions, sampling distribution, estimators, confidence intervals, hypothesis testing, regression, and so on.

**Required Text:** *Introductory Statistics* by Openstax College, Rice University (2018), ISBN-13: 978-1-938168-20-8. It is available online (or PDF version) for free at <https://openstaxcollege.org/textbooks/introductory-statistics>

### Optional Text(s):

- **(HLS)** Huff, Darrell (1954) *How to Lie with Statistics*, 1<sup>st</sup> edition, Norton, W.W. & Company, Inc., New York.
- **(NS)** Wheelan, Charles (2013) *Naked Statistics: Stripping the Dread from the Data*, 1<sup>st</sup> edition, Norton, W.W. & Company, Inc., New York.
- **(Intro\_R)** W. N. Venables, D. M. Smith and the R Core Team (on Canvas) (2017) *An Introduction to R: Version 3.4.1*.
- **(Dummies)** de Vries, Andrie, and Meys, Joris (2015) *R for Dummies*, 2<sup>nd</sup> edition, Jon Wiley & Sons, Inc., New Jersey. (access to ebook via the Marriott lib.)
- **(Book)** Davies, Tilman M. (2016) *The Book of R: A First Course in Statistics and Programming*, No Starch Press, San Francisco. (access to ebook via the Marriott lib.)
- **(RBook)** Crawley, Michael J. (2013) *The R Book*, 2<sup>nd</sup> edition, Jon Wiley & Sons, Inc., New Jersey. (access to ebook via the Marriott lib.)

**Course Objectives:** At the completion of this course, a successful student will be able to:

- have a basic theoretical and conceptual understanding of statistical techniques.
- to some extent, understand and interpret quantitative analysis.
- execute such an analysis using the statistical software Excel or *R*.

**Teaching and Learning Methods:** This class will be operated by a combination of video lectures, assignments, and exams. For successful completion of this course, class attendance will be an integral part of this course, and reviewing class materials and completing assignments will be helpful for your understanding.

**Software:** It is required to use statistical software Microsoft Excel or *R* for assignments and detailed instructions about Excel and/or *R* will be posted on Canvas.

**Grading Assessment:**The official course grade will be based on the sum of points you have made on assignments and exams.

- **Assignments (30%):** There will be five assignments and each assignment will be based either on theoretical (or conceptual) questions or on application (use) of the contents covered in the lectures, or both. Please see the course outline and schedule for dates of assignments.
- **Exams (70%):** There will be two open-book format exams: midterm (30 points) and final exam (40 points). Detailed instructions will be posted later on Canvas.
- **Extra Credit (10 % max):** You will have opportunities to earn extra credits in assignments or exams.

### Letter Grade Distribution:

- Tentative grading scale is: A range  $\geq 90$ ; B range  $\geq 75$ ; C range  $\geq 65$ ; D range  $\geq 55$ .
- It might be adjusted based on class performance.
- The following distribution was used for the Summer 2019 semester.

$\geq 92.0$	A	70.0 - 76.9	B-	$< 50.0$	D+
88.0 - 91.9	A-	66.0 - 69.9	C+		D
83.0 - 87.9	B+	60.0 - 65.9	C		D-
77.0 - 82.9	B	50.0 - 59.9	C-		E

### Course Policies:

- For successful completion of the course, you must check the course materials regularly.
- Important information will be announced via Canvas. You will need check your email address linked to CANVAS. Usually, I will reply to emails/Canvas messages within 24 hours.
- Assignments and exams will be graded within 24 hours of the date they are submitted or taken.
- No makeup exams will be given unless absence is due to a documented medical/family emergency or a previously approved excused absence.
- No late submission of assignments will be accepted without an agreed prior extension from the instructor.
- The Mark "I (incomplete) will be given only for work incomplete because of circumstances beyond the student's control such as medical reasons or family emergency. An "I" should be used in a way that will permit a student to retake the course without paying tuition.
- For the assignments, discussion amongst students (groups) is encouraged, but when in doubt, direct your questions to the instructor.

### Academic Policies:

- **Faculty and Student Responsibilities:** All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the [Student Handbook](#). Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

- In particular, you should be mindful of the [Academic misconduct](#) defined in the Academic Policies such as cheating, misrepresenting one's work, plagiarism, inappropriately collaborating, fabrication and so on. **Cheating on the exams** (or other forms of academic dishonesty) may lead to failure of class (or expulsion from the class). For the assignments, discussion amongst students (groups) is encouraged but **copies and exact duplicates are unacceptable**. If you are found responsible for misconduct (e.g. offering and accepting solutions from others), all involved parties will be penalized.
- **Wellness statement:** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at [www.wellness.utah.edu](http://www.wellness.utah.edu) or 801-581-7776.
- **Addressing Sexual Misconduct:** Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS)
- **The Americans with Disabilities Act:** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 801-581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.
- **Student Names & Personal Pronouns statement:** Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email [bpeacock@sa.utah.edu](mailto:bpeacock@sa.utah.edu) to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

**Tentative Course Outline and Schedule<sup>1</sup>**

Week	Topic	Chapter	Note
01	Introduction Sampling and Data / Descriptive Statistics	Chs. 1 to 2	
02	Descriptive Statistics Probability Topics	Chs. 2 to 3	A1
03	Random Variables (Discrete, Continuous)	Chs. 4 to 5	
04	Random Variable (Continuous) The Normal Distribution	Chs. 5 to 6	A2
05	The Normal Distribution The Central Limit Theorem / Review	Chs. 6 to 7	A3
06	<b>Midterm</b> / Confidence Intervals	Ch. 8	
07	Hypothesis Testing	Chs. 9 to 10	
08	(One Sample, Two Sample)		
09	Chi-square Distribution	Chs. 11 to 13	A4 A5
10	Linear Regression and Correlation		
11	F-distribution and One-Way ANOVA / Review		
12	<b>Final Exam</b>		

Assignment	Chapters	Points	Due Date	Assignment	Chapters	Points	Due Date
1	1, 2	4	May 24 (Sun)	4	8, 9, 10	8	July 12 (Sun)
2	3, 4, 5	5	June 7 (Sun)	5	11, 12, 13	8	July 26 (Sun)
3	6, 7	5	June 14 (Sun)				
Exam	Chapters	Points	Date	Exam	Chapters	Points	Date
Midterm	1 to 7	30	June 24 (Wed)	Final	8 to 13	40	July. 29 (Wed)

**Important Dates:**

- Wednesday, May 20<sup>th</sup>: Last day to add, drop, audit, and elect CR/NC
- Friday, June 19<sup>th</sup>: Last day to withdraw from classes

<sup>1</sup>I reserve the right to make such alterations to this tentative schedule as circumstances may warrant.