# Winter Quarter 2015 1:30-3:50 Tues,Thurs Building 17-106

**Math& 146, Item 6445: Introduction to Statistics**

**Instructor:** Helen Burn **Office:** Building 18-110

**Telephone**: 206.592.3496 **E-mail:** hburn@highline.edu

**Course website:** http://people.highline.edu/hburn/Math146.php

**Office Hours** Monday/Wed 1:30-2:30, Tues-Thurs 11:30-12 and 4:00-4:30

I am also available for individual appoints (please email me)

**Text:** Understandable Statistics, Brase & Brase, 10th edition

**ISBN13:** 9780840048387

**Online Homework: WebAssign** <https://www.webassign.net/login.html>

**Institution: highline.cc.wa**

**Class Key:** **highline.cc.wa 5577 3935**

**Calculator:** Graphing calculator required, TI-83/84 recommended

**Prerequisite:** MATH 091 with 2.0 or above, MMT Algebra core with score of 77 or above,   
 COMPASS algebra score of 71.

**CONTENT AND COURSE OBJECTIVES:** This course is for students whose course of study requires statistics, such as nursing, business, engineering, and science majors. The course topics include basic statistical vocabulary, symbols, and descriptive methods; sampling techniques, probability and probability distributions, inferential methods including confidence intervals and hypothesis testing, emphasizing applications to social science and nursing. In addition to learning specific mathematical concepts, this course is important in helping you master specific college-wide student learning outcomes, which are an integrated set of foundational knowledge, skills, and attitudes that prepare you for future academic and career success. These are basic competencies enabling a lifetime of self-directed learning, effective communication, and responsible citizenship. These include:

**COLLEGE WIDE LEARNING OUTCOMES**

**Reason Quantitatively**: The ability to comprehend, analyze, estimate, use, and evaluate quantitative information arising in a variety of situations and involving a combination of words, data sets, graphs, diagrams, and symbols.

**Communicate Effectively**: The ability to read, write, listen, speak and use visual and other nonverbal means of communication with clarity and purpose while being mindful of audience characteristics; to express original thought, to take a position and defend it using solid evidence and sound reasoning; and to recognize and consider the perspectives and contributions of others.

**Think Critically**: The ability to identify and summarize assumptions, issues, and salient arguments, as well as to draw logically valid conclusions from statements, images, data, and other forms of evidence relevant to discipline- or occupation-specific content, and to assess the implications and consequences of conclusions.

**Demonstrate Civic Responsibility in Diverse and Multifaceted Environments**: The ability to understand and interact productively and ethically with others in diverse local, national, and global communities with an informed awareness of contemporary issues, their historical contexts, and their personal relevance.

**Develop Information and Visual Literacy**: The ability to assess the information requirements of complex projects, to identify potential textual, visual and electronic resources, to obtain the needed information, to interpret, evaluate, synthesize, organize, and use that information, regardless of format, while adhering strictly to the legal and ethical guidelines governing information access in today’s society.

**COURSE-LEVEL STUDENT LEARNING OBJECTIVES:**

* Communicate effectively, in written and verbal form, using basic statistical vocabulary and symbols.
* Identify and explain appropriate experimental design and sampling techniques for statistical studies
* Organize, summarize, represent, and interpret data, using technology where appropriate.
* Create and evaluate the suitability of linear models for a data set, and interpret its meaning in everyday language.
* Compute empirical and theoretical probabilities represented in words, symbols, contingency tables, and probability distributions.
* Apply statistical methods to make inferences about population parameters based on sample statistics (e.g., confidence intervals, hypothesis testing).

**CLASS PARTICIPATION:** We will use both individual and group learning in this course. Groups will be self-selected at first, and then I might help reassign or manage the groups. You will do a portion of the work in this class in groups, with periodic *lecturettes* given by the instructor. Most group work will be done in class, with each group turning in one paper and receiving a group grade. You can miss one group assignment without affecting your grade.

Note: Working effectively in groups places a large responsibility on each member to be present at all times, to do a fair share of the work assigned to the group, and to be prepared each day to make a proper contribution. Thus, class attendance and participation is essential to making the process work. If you miss class, it is your responsibility to find out what material was covered and what assignments were made for any classes you miss. The material stressed in class will more likely be emphasized on quizzes and exams.

**LATE POLICY:** Students who are late will be counted. Students who are late more than 5 times during the quarter will have 0.1 deducted from their overall GPA (e.g., a 4.0 becomes a 3.9).

**CELL PHONE POLICY:** Cell phones can be on, but all alerts (including vibrate) must be turned off while in class. Students who are checking their cell-phones will be addressed directly by the instructor and may be asked to leave class to respond to calls or texts.

**SPECIAL NOTES**: You can succeed in this class! Cost-free tutoring is available. The tutoring center is located in 26-319, Mon&Thurs 8 AM – 7:30 PM; Tues&Wed 8AM-4PM; Fri: closed. Call ext. 3444 or find information at http://tutoring.highline.edu/HelpInMath.htm

If you need course adaptations or accommodations because of a disability; if you have emergency medical information to share with the instructor; or if you need special arrangements in case the building must be evacuated, please provide the instructor with the Letter of Accommodation you have received from the office of Access Services. Access Services is located in Building 99, 206.592.3857, http://access.highline.edu/

Cheating and plagiarism, and other forms of academic dishonesty are unacceptable at HCC and subject to disciplinary action. It is both your right and your responsibility to be familiar with a document entitled: Student Rights and Responsibilities code WAC 1321-1210 adopted by the Board of Trustees of Community college District 9 on July 9, 1992. This is available in the counseling center, or a summary is provided in the college catalog.

**EMERGENCY PROCEDURES:**If a campus emergency that poses risk to students occurs, please be prepared to immediately follow the instructions of your Instructor.  Do not exit the classroom until instructed to do so.  If building evacuation is required, you will be asked to leave all of your non-essential personal belongings in the classroom and quickly, yet orderly and safely, exit the classroom, and the building.   If you will need assistance to evacuate in case of an emergency, please notify the instructor today.  As the last person to exit, I will lock the classroom door behind me.  If possible, please exit through the east doors (this will vary by building) and gather in a safe location on the main campus walkway so that I may account for your presence and safety.  Please sign up for the campus text-message alert system. The instructions are on the page http://hcctextalerts.highline.edu/update.php

**Online Homework Software: Class Key: highline.cc.wa 5577 3935**

We will be using WebAssign for online homework. To access this online homework system, log into <https://www.webassign.net/login.html> and enroll yourself with the institution name: highline.cc.wa and class key **highline.cc.wa 5577 3935**

**Computer Problems Helpline:** If you have computer problems, help is available. Please call the helpline at 206-870-4880 or e-mail them at [its@students.highline.edu](mailto:its@students.highline.edu)

**ASSESSMENT AND GRADING:** You will be assessed and graded on the following items:

IN-CLASS GROUP TASKCARDS: Taskcards count for 5% of your final grade. The majority of this work will be completed in class. Most assignments will be worth 3 points. 3 – complete and correct with only minor error; 2 – incomplete or major errors; 1 – incomplete and major errors; 0 – not turned in. Your lowest score will be dropped. Late work will not be accepted and you will not receive credit for group work you did not participate in. If you do not complete a task within the class, you can complete it at home and turn it in the next day.

TEXTBOOK HOMEWORK and TAKEHOME ASSIGNMENTS: Much of your learning will happen through doing these assignments, which will count for 10% of your grade. Homework will be done online using the software WebAssign. Assignments will vary in length, but each will be weighted equally. You have three attempts at each question, although on some questions you will only have two attempts. You will receive a 5% bonus for any questions completed 48 hours prior to the due date. To help avoid confusion, you will be given an assignment sheet with due dates on it. Your lowest score will be dropped. Extensions on homework due dates will be considered only if the request is made prior to the due date.

QUIZZES: There will be weekly quizzes held on Thursday. These will count for 25% of your final grade. The content of the quiz is the homework due the previous Tuesday plus in-class Taskcards. No makeups will be given unless there are extreme circumstances and you make arrangements in advance. Your lowest quiz score will be dropped.

EXAMS: There will be two exams (20%) and a final (20%). The final exam will be cumulative. No makeups will be given unless there are extreme circumstances and you make arrangements in advance. If you receive less than 60% on your final exam, the highest grade you can get in the class is a 2.0. The date and time of your final exam is listed on the calendar (see Page 8). All exams, quizzes, and finals will be kept for one year before being shredded and recycled.

PROJECTS: You will complete one project, either with a group or individually, that applies the ideas from the course. The project will be due at during week 10 and may involve a group presentation. You will be provided guidance on completing the project, which counts for 15% of your grade. A portion of your project grade will be based on an evaluation by your peers of your contribution.

CONCEPT QUESTIONS: 5% of your grade will be based on completing concepts questions once every two weeks. These will be completed individually during class. Concept questions provide opportunities to explore statistical ideas that are not appropriate for a timed test. Your lowest concept question score will be dropped.

GPA computation: .05\*(Taskcard average) + .15\*(Homework average) +.20\*(Quiz Avg) + .20\*(Exam Avg) + .20 \*(Final) + .15\* (Project) + .05\* (Concept Questions)

**GRADING SCHEMES:**

After the second exam, you will be given a choice about whether you want to use the traditional grading scheme or an alternative grading scheme:

**Scheme 1:** Traditional grading as stated on the prior page

**Scheme 2:** Project (35%); Quiz (20%), Exams (20%), Final (20%), Concept questions (5%) This scheme works for students who learn independently. They would not be penalized for missing group work or not completing homework.

**Scheme 3:** Project (45%); Final Exam (50%); Concept questions (5%). This scheme would work for students who want to just show mastery of the material through their project and their final exams. In this case, the project must be completed individually.

At the end of the quarter, you will have received a certain number of percentage points. Based upon your total points your grade will be assigned as follows:

95 - 100% = 4.0 90 - 94% = 3.5 - 3.9 80 - 89% = 3.0 - 3.4 70 - 79% = 2.0 - 2.9

60 - 69% = 1.0-1.9 50 - 59% = 0.0-0.9 49 and below = 0.0

**A TYPICAL WEEK:**

**Tuesday** Students will put homework questions they have on the board at the beginning of class and show the work they have completed. Students or the instructor can help answer questions (10-20 minutes). Following this, we will have groupwork on a topic or a lecture

**Thursday** In-class quiz on homework from the previous Tuesday plus TASKCARDS followed by group grading and lecturette. New material will then be introduced.

**Instructor Expectations**

* Attend class and be on time
* Be a positive person in class
* Engage actively in the class. Be prepared to contribute, participate, ask and be prepared to answer questions. If you are the kind of person who has extreme fright at speaking in public, please email me to let me know about your situation.
* Be respectful of your peers and of me. No laughing or making faces at students who ask questions.
* Engage your homework before the due date. Class will only be productive if you keep up with the topics.
* Seek help early
* Do not text or surf the internet. You can have your cell phone on vibrate as long as it is not disruptive. For example, during tests, the vibration is quite noisy and distracting. If you are caught texting in class, you will be asked (publically) to stop.

**Seeking Help**

**How to email me:**

**hburn@highline.edu**

If you email me, please put “Math 146” in the subject line

Start your mail with: This is \_\_(your name)\_\_\_\_ from your Math 146 class. I am writing to tell you that \_\_\_\_\_(tell me what you need)\_\_\_\_\_\_

Use full words and full sentences and spell check for typos. Many students ask me to write them recommendations for college and jobs. Use this class as a chance to practice writing professional emails.

**During office hours:**

Office hours are for helping students with math problems, either from homework, quizzes, or exams. My office hours are generally held in a large room, like our classroom or the tutoring center and many students will be present. If you need a private office hour, you can see me or by appointment.

So that I can help the most students during office hours, please bring the specific problem you need help with along with the work you’ve tried. Start the discussion with:

Here’s the problem I’m working on

Here’s what I’ve tried (show me your work)

Here’s where I’m stuck

In college, if you miss a class, it not appropriate to expect me to relecture. Instead, you need to get class notes from a peer. However, sometimes students do need help that goes beyond a specific problem and could involve reteaching the topic. In that case, I expect you to email me in advance so that I am aware that this is what you need and can restructure my office hour time to accommodate you.

**To my students: Helen’s approach to teaching**

1. **My role is to create interesting and engaging learning activities and provide you feedback on your learning.** Learning activities should help you understand the major ideas of the course. Learning should be fun, interesting, and engaging. Lecture is not always the best way to help you learn, but some lecture is required. Prompt feedback is important, so I tend to make minimal comments on your papers (because research suggests students look mainly at the numerical score and not the comments) and post keys online for you to check your work. I expect you to ask for points back if you feel I have incorrectly graded your work.
2. **Students learn most when instructors maintain high expectations.** You might notice during group work that, rather than giving you the answer, I ask you to struggle productively with the concept. So I might say “can you tell me what you were thinking in taking this approach?” or “why don’t you rethink your approach and check in with other students to see what they did.” I expect you to take responsibility for your learning. This is a key part of college culture. If you miss class, it is not OK to ask “what did I miss?” Instead, get notes from a friend and ask me for any handouts. If you are afraid to ask for help or lack confidence in yourself, start working on this now before it’s too late. Free counseling is available on campus. Use it!
3. **Exams and quizzes are a major component of your grade and should be closely aligned to course content and not include “trick” questions**. Tests are aligned with quizzes; quizzes are aligned with homework and in-class task cards. It is perfectly acceptable to ask you to apply familiar concepts to new situations on an exam. I do not give out “sample” exams. To prepare for exams, I only give out study guides with major concepts and skills. Please don’t ask “is this on the test?” Every idea in class is important whether or not it’s on the exam.
4. **Students need to practice complex problem solving, communicating, and working in teams in order to function in today’s world.** College should help you grow intellectually. I expect students to interpret answers on exams and quizzes, do complex problem solving in groups, your course project, and concept questions throughout the quarter. Rather than complain about these, embrace them and realize that engaging in these activities is making you smarter and more prepared for interesting careers.
5. **My feedback to you will be respectful, direct, but not “sugar coated.”** Everyone deserves respect. However, praising you on accomplishing easy things does more damage than good. Instead, praise should be reserved for understanding concepts, completing complicated tasks, and accomplishing tasks that take perseverance and attention to detail. Sometimes student expect me to be very nurturing and nice because I am female, but they are often disappointed because I don’t fit this stereotype. I have a direct communication style that some students find refreshing but others misinterpret it as rude. You will encounter people in your lives who are direct, so practice by interacting and working with me.
6. **Lastly, I take my profession very seriously.** The low level of mathematics achievement in the US, given abundance resources, is quite frankly shameful. To be competitive in today’s world, you need to be able to reason quantitatively and not be fearful when “math” comes up. Professionals rarely do algebra, but they do encounter numbers, graphs, and quantitative relationships all the time. I have a master’s degree in mathematics and a Ph.D. in education, so I know a lot about the dire situation with our nation’s weak educational outcomes. Students perpetuate this cycle without being aware, such as being disengaged in class (showing up late, texting or talking) or wanting me to tell them the answers rather than wanting to productively struggle with difficult concepts. These behaviors may seem normal to you, but they are part of a culture of classroom dysfunction that has led many people to challenge the value of public education. I am concerned about the future of education in this country and work locally and nationally to make it better. You can find the projects I work on at [www.curriculumresearchgroup.org](http://www.curriculumresearchgroup.org)

**Winter Quarter 2015 Schedule,  
Math 146, Item 6445, 1:30-3:50 T,Th**

**Note: This is a tentative schedule that is subject to change**.

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| 5 Jan  Weekly goal:  Intro to Data (Chapter 1.1-1.3) | 6  **FIRST CLASS** | 7 | 8  Have Calculator  Quiz 1 on HW1 and Taskcard  HW#1 Due at midnight | 9  NO Class on Fridays!  Last day for 100% refund |
| 12  Weekly goal:  Chap 2: Organizing data | 13  HW#2 due at Midnight | 14 | 15  Quiz 2 on  HW 2 and Taskcards | 16 |
| 19  Martin Luther King Jr. Holiday  CAMPUS CLOSED  Weekly goal: Chapter 3: Averages and Variation | 20  HW#3 due  Concept Q#1 | 21 | 22  Quiz 3 | 23 |
| 26  Last day to drop with no W on transcript;  Last day for 40% refund  Weekly goal:  Chapter 9.1/9.2 Regression | 27  HW#4 due  **Project Planning and Proposal Due** | 28 | 29  Quiz 4 | 30 |
| 2 Feb  Weekly goal:  Start Chapter 4  Probability | 3  HW#5 due | 4 | 5  Exam 1: Q1 to Q4; HW#5 | 6 |

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| --- | --- | --- | --- | --- |
| 9 Feb  Weekly goal:  Probability, Chapter 4 | 10  HW#6 due  Chapter 4  Begin Chap 5  Concept Q #2 | 11 | 12  Quiz 5  **Group Project Discussion deadline** | 13 |
| 16  President’s Day  CAMPUS CLOSED  Weekly goal: Finish Chapter 5/ start Chapter 6 | 17  HW #7 due | 18 | 19  Quiz 6 | 20 |
| 23  Weekly goal: Chapter 7 | 24  HW#8 due  **Peer Review of Draft Project Due** | 25 | 26  Quiz 7 | 27  Last day to withdraw, W on transcript |
| 2 March  Weekly goal  Chapter 7/8 | 3  HW #10 due | 4 | 5    Exam 2, Quiz 5, 6, 7 | 6 |
| 9  Weekly Goal  Chapter 8 | 10  HW #11 Due  Concept Q#3 | 11 | 12  Quiz 8 | 13 |
| 16  Last day of class | 17  Final Projects Due by 5 PM | 18 | 19  Final (1:30)  1:30 – 3:20 in 17-106 | 20 |

NOTE: GRADE CHECKS WILL BE GIVEN AFTER EXAM 1 AND 2