SEATTLE CENTRAL COMMUNITY COLLEGE

Office of Instruction

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**Course Title & Number:** MATH&146 **Credits:** 5

**Instructor:** Lawrence Morales, James Gray

**Office Hours:** By appointment

**E-mail:** Please contact me via WAMAP if you have questions.

**Prerequisites:** MATH098 with a 2.5 or higher. Prerequisites must be current (within the last 3 years and will not be waived because of the high demand for this course).

**Course Description:**  This is a course in statistical thinking. It introduces students to basic concepts of statistics and how to work with data, graphically and numerically. Statistical inference concepts like hypothesis testing and confidence intervals are included. These topics help students develop critical reasoning skills necessary to understand our quantitative world.

**Learning Outcomes:**

As a result of taking this course, students will be able to:

* Summarize and describe data graphically using bar charts, pie charts, histograms and others.
* Summarize and describe data numerically using mean, median, standard deviation and others.
* Use graphs and basic statistics to analyze, interpret and draw conclusions about the data.
* Identify the pitfalls of bad sampling methods; Use real life data sets to discuss and identify good sampling techniques.
* Use properties of basic probability to compute the probabilities of normally distributed data sets.
* Apply concepts of sampling distributions and the central limit theorem and use these to analyze, describe and measure sampling variability.
* Conduct hypothesis testing and calculate confidence intervals for one-sample mean, two-sample means, one-sample proportion and two-sample proportions.
* Identify and explain the limitations of statistical inferences.

**Course Topics (Outline):**

1. Examining Distributions
2. Examining Relationships
3. Sampling, Study Design, and Introduction to Probability
4. Random Variables
5. Sampling Distributions
6. Introduction to Inference and Estimation
7. Hypothesis Testing with One Sample
8. Inference for Relationships

**Required Materials:** In this course, you will need the following:

* Regular and reliable internet access – if you don’t have this, please reconsider if this course is best for you.
* Acrobatiq account ($50) – see below for details
* StatCrunch account ($12) – see below for details
* WAMAP account – see below for details
* Any scientific calculator for quick calculations
* Loose leaf paper (not torn out of a spiral or notebook!)
* Pencil and erasers **(please avoid using pen)**
* Binder – Please keep all your scratch work organized in the binder; each page should be dated at the top and give you information about the problem (problem number, site [WAMAP or Acrobatiq], etc.). I reserve the right to ask the class for a sample of your written work at any time. I do this to help YOU stay organized; in an on-line course, this is very useful.

**Methods of Instruction:**  The primary method of learning in class time will be through online delivery. The course is broken down into 8 Topics. Each Topic will have readings, Checkpoints, and Online Homework. Videos are available for most Topics and students should use them if they need additional help after reading the material.

**Textbook:**  Online – Acrobatiq.com – You will need to sign up for an Acrobatiq.com account and pay the subscription fee to access it. The site will allow a few days of free access if you are waiting for financial aid, but don’t delay. For this course, use this URL link to access our course:

#### <http://courses.acrobatiq.com/invitation/5GSTA2XTGUV/signup>

#### The course key (if needed) is: statsmorales15summer

#### There is no textbook you need to buy from the bookstore. If you bought a book, please return it for a refund. I did NOT request a book for this course to be placed in the bookstore, so if anyone told you a particular book was required, they gave you the wrong information and I’m sorry.

**Statistical Calculations:** This course will require a significant amount of data analysis and calculations. These can be done with a graphing calculator or many software programs. I have chosen a tool that is both inexpensive ($12) AND powerful. While it takes some time to get used to, it’s a very useful tool. Anyone who learns statistics should also learn how to analyze data with a tool like this. To gain access to StatCrunch, go to

[**http://www.statcrunch.com/get-access/**](http://www.statcrunch.com/get-access/)

and sign up for 6 months of access ($12). Be sure to look for the Student rate. I have created a “Morales Stats” group there where I have and will place data files that we will need for this course. Please note that you may have to click on the “## data sets” link at the top of the group to see ALL the data sets. The address for the group is:

[**http://www.statcrunch.com/5.0/group.php?groupid=2407**](http://www.statcrunch.com/5.0/group.php?groupid=2407)

**Course Structure:** This course has EIGHT topics (see above for descriptions). Each topic will typically include the following:

* Acrobatiq Textbook Reading: It is very helpful to you that you read the material carefully and complete all of the “Learn by Doing” problems, “Activity” problems, and “Did I Get This?” questions AS YOU READ. They are there to help you understand the ideas and prepare you for other assignments in the course. The “Learn by Doing” and “Did I Get This?” questions along the way don’t count in your grade, but doing them will help you learn. So, please, do them. :-)
* Acrobatiq Checkpoints: These are scattered throughout Acrobatiq and DO count towards your course grade. (Find a list of where they are at this [LINK](https://docs.google.com/spreadsheets/d/1Z9buot831E4Ut9RdWXDZ1py8n_Om0LkKGGPRk3aoX64/edit?usp=sharing)) You have TWO attempts per (entire) checkpoint and your highest grade is counted. My understanding is that you need to submit all questions on a checkpoint and that counts as ONE attempt. You can then review your scores and then start your next attempt, if you have any left.   
   Checkpoints focus mostly on concepts; so as you read pay attention to those. There may be multiple checkpoints per Topic, so pay attention to that as well. Scores will be imported into your WAMAP gradebook at the time of the due date.   
   Checkpoints will have recommended due dates on the WAMAP calendar. You may submit them at any time until the day and time the final exam is due. However, I highly encourage you to do them by the recommended due dates as they are important tools to help you check your understanding of the material and some of the questions will show up on other assignments in the course.   
   At the end of the quarter, I will drop your lowest Checkpoint score at the end of the quarter.
* WAMAP Problem Sets: There are eight (8) topics in the quarter. Each topic will have a WAMAP homework set associated with it. These problem sets focus more on calculations and data analysis, rather than on concepts. For multiple-choice problems where only 2 attempts are allowed, full credit is only given on the FIRST attempt. 80% credit is given on the second attempt.   
   For OTHER problems, where you see 3 attempts possible, these problems can be re-generated if you get a problem wrong so that you can try again and get full credit if you did not do so. If you get a problem right on the first or second attempt, you get full credit. If you get it right on the third attempt, you get 75% of full credit. However, you can usually immediately regenerate a new problem (with new numbers) and start over with 3 attempts. WAMAP will record your best score, even if you do extra problems for practice that you don’t get correct. Look for the “Try a similar problem” link when you click on a problem to regenerate a problem. You can continue to submit answers until the due date/time and WAMAP will record them in your WAMAP gradebook.   
   I will provide a limited number of LatePasses for each student for WAMAP problem sets. Each Late Pass gives a 24-hour extension and should be used/invoked BEFORE the normal due date and time. I will drop the lowest homework score at the end of the quarter.   
   You may be asked at any time to submit of a portion of your HAND WRITTEN work for WAMAP problems for each Topic. In these cases, you work should be be neat, legible, labeled, and clear, so that I/we can read it. Your PRINTED name and your signature should appear at the top of the first page that you submit.   
   At the end of the quarter, your points for the WAMAP Homework will be divided by 95% of the total, effectively giving you a 5% bonus in this category.
* Topic Quizzes: There are eight (8) topics in the quarter. Each topic will have a TIMED Quiz associated with it. These are designed to help YOU see if you are really learning the material in the current topic and retaining the material from previous topics.   
   Each quiz will consist of 4 or 5 questions. 2 or 3 of them will be from the CURRENT topic and will be selected from the Topic Homework set. The remaining questions will be randomly drawn from PREVIOUS Topic Homework sets.   
   Quizzes are timed (20-30 minutes long) so that you can get used to taking timed assessments in preparation for the Midterm and Final, which are also timed. However, I want these quizzes to be learning tools for you. So, after you submit a quiz, you will be given feedback on your answer and score. Late Passes can be used on Quizzes.   
   At the end of the quarter, your lowest Quiz percent will be dropped.
* \*Note on open-ended questions and grading: Some questions in Acrobatiq and WAMAP ask for open-ended responses. The computers will not automatically grade these. They may require me to read them and score them. I reserve the right to (randomly) choose which ones to read carefully and grade in-depth, and which ones to simply give credit for any response. I will exercise that right depending on how many students I have and how much time I have to spend on quality grading.
* Acrobatiq StatTutors: There are multiple StatTutor exercises in Acrobatiq that you may complete for extra credit. This is the only extra credit available to you. These focus on applying the concepts to data analysis problems. These require a fair amount of time and effort so please don’t put them off until the last minute. Please read the directions carefully…the questions on each one must be completed in a particular order so that your data analysis is complete and makes logical sense to you. There are multiple StatTutors available to you. Doing a StatTutors can earn you **up to** two (3) points towards your Midterm and Final scores. Each StatTutor done at 100% will earn up 1 point on a midterm or exam. You may earn **up to** 3 points on each of the midterm and exam. The first three StatTutots available on Acrobatiq will apply to the Midterm. The ones after those will apply to the Final Exam.

**There will be a Midterm and a Final Exam at the end of the quarter. The Midterm Covers Topics 1-4 (Modules 1-11). The Final Exam is cumulative so it may cover any topic from Topics 1-8 (Modules 12-19). However, it will focus more on Topics 5-8 (Modules 12-19). Each exam will be available for least TWO school days before it is offcially due. The final exam due date/time is Thu Aug 20…please do not plan any travel that will interfere with your ability to complete the exam on and by that date. Sorry, Late Passes cannot be applied to the Midterm or Final.**

**Calendar/Schedule:** All due dates will be posted on wamap.org. Please check the calendar daily to make sure you know when due dates are coming. It is YOUR responsibility to know the due dates by checking the WAMAP calendar. Most due dates are 11pm SEATTLE time. Please make sure your computer settings for your date and time are set to Seattle time….if do not do so, your WAMAP calendar may display due dates that are misleading. If you travel out of the time zone, be sure to use your WAMAP settings to at least temporarily display the Pacific Time Zone on the WAMAP calendar so that you’re due dates appear correctly to you.

**Getting Help:** Your best option for getting help on content or homework problems in the course is to post a question on the WAMAP forums. At the bottom of most WAMAP Problems, you will see a link that allows you to post a question about that problem to a Forum. That link will say “Post this question to forum.” Please USE THAT LINK – it copies your version of the problem into the post, automatically fills out your subject line, and alerts you if someone else has already posted on that problem.

When you post a question to the forum, please be patient. I will make a good faith effort answer the question by the end (5PM) of the NEXT official class day[[1]](#footnote-1). I’m normally pretty good at this, but once in a great while there are days I may not be able to do this. I try to check WAMAP a couple of times a day and try to respond as quickly as I can. I may not check WAMAP after 5pm, on the weekends, on holidays, or on non-class days, so please plan accordingly. Hence, if you post a question on the same day an assignment is due, this means you may NOT get a response before the assignment is due. Again, please plan accordingly.

Please do not send questions about content or homework problems via email or WAMAP messages…those only go to me and will not allow students in the course to see your question and any responses. This will ensure that questions in the course can be efficiently addressed. If you do forget and send me a private message or email about content or a homework problem, I might ask you to post it to the forum BEFORE I respond. Of course, if you have questions that are of a more private nature (grade issues, personal matters, etc), please do not hesitate to do so with a private email or WAMAP message.

If you post a question about Acrobatiq text material, please be sure to fill out the subject line to include the Module number AND the page number on that site. It helps me and others find things easily.

Also, be specific with your posts. Please don’t post “Help!” as your message. I need more than that to help you. Explain what you have done so far, or what you THINK might be an answer or response. If the problem requires any kind of calculations, you should be carefully and neatly documenting your work in your Binder (see Required Materials). I encourage you to take pictures of your work and post them with your question so that I can see your work and thinking. This is very helpful for me and allows me to more quickly help you with your questions.

Finally, I highly encourage you to responds to OTHER students’ questions. However, please don’t just give away answers. Provide help, hints, tips and encouragement. I’ll monitor responses and if there are errors in them, I’ll try to correct them. Making errors is OK as long as you learn from them, so don’t hesitate to try to help others in discussion Forums.

You can also schedule an appointment to visit office hours if necessary as well.

**Grades and Course Policies:**

Your course grade will be weighted as follows:

Checkpoints 10%

WAMAP Homework Sets 20%

Quizzes 20%

Midterm 25%

Final Exam 25%

\*The course structure is new and is still “evolving.” So, at the end of the quarter, I reserve the right to edit each of these percentages up or down by as much (but not more than) 10%, depending on circumstances. I will inform you on WAMAP if any substantive changes to the syllabus occur.

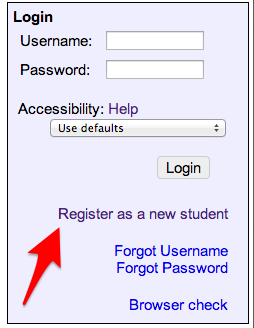
A 95% assures a 4.0. A 75% assures a 2.0. All other grades are computed with a linear formula that goes through those two points [(95,4.0) and (75,2.0)]

**Americans with Disabilities Act Statement:** Students with documented disabilities who need course accommodations, have emergency medical information, or need special arrangements for building evacuations should contact the instructor within the first two weeks of class. You must meet with the Disability Support Services Office before accommodations are arranged. If you want accommodations under this act, please contact your instructor within the FIRST WEEK of the quarter so that you can have a conversation about your needs.

**All-gender restroom facilities:** For any students who need access there are two all gender, single-stall restrooms available on the 3rd floor of the Main Broadway Edison (BE) building. They are located down the Health and Services hallway, across from room 3216.

# Creating a WAMAP.org Account for MATH146 (Summer Qtr Only)

## IF YOU HAVE A CURRENT WAMAP ACCOUNT:

If you already have an existing WAMAP account, you can use that username and password instead of creating a new one. Log into your account and then look for the “Enroll in a New Class” button on your WAMAP home page. Use the Course ID and Enrollment Key in Step 4 below to enroll for our WAMAP MATH080 course.

## IF YOU DO NOT HAVE A CURRENT WAMAP ACCOUNT:

1) Go to <http://wamap.org>

2) Click on the “Register as a new student” and you will be taken to the “New User Signup” page. Using WAMAP is free. ☺

3) Choose a username and password and enter your full name as it appears on your college/university records. Please be sure to include a valid email address.

4) At the bottom of this page, enter the **Course ID** and **Enrollment Key** for the course(s) you are taking:

* Course ID = **10376 (This only works for Summer Quarter)**
* Enrollment Key = **summerstats15**

5.) Click the “Sign Up” button at the bottom.

4) Go back to the login page of wamap.org and enter your username and password and click the “Login” button. This should take you to your WAMAP home page.

6) Back on the WAMAP main page, you should see a link to any course you are taking…click that link to enter the course site. That’s it!

1. During Summer, official class days for SCC are Mon-Thur. During the rest of the year, official class days are Mon-Fri [↑](#footnote-ref-1)