

## **Math Placement Information**

### **Message 1**

Note: Every College or University has a different mathematics placement process. It is worth your time to investigate this BEFORE you arrive for your summer orientation. It is likely you will be required to take some type of mathematics placement test before you register for your first semester of classes and you should be ready!

### **Steps for Math Placement at SDSU:**

1. You are automatically placed if you already have college credit.
  - a. Take and pass the AP exam for Calculus
  - b. Take a CLEP (College Level Examination Program) exam to earn college credit for any course College Algebra or higher, except Statistics
  - c. Take a dual credit course to get college credit for a class you take in high school (except Statistics) (CAUTION!)
  
2. ACT Math Subscore
  - a. If your Math Subscore is 25 or higher, you may take Math 102 (College Algebra), Math 103 (Quantitative Literacy), Math 115 (Precalculus), Math 120 (Trigonometry), Math 121 (Survey of Calculus) or Stat 281 (Intro to Statistics).
  - b. If you wish to take Math 123 (Calculus I), you must take the COMPASS Exam
  - c. If your ACT Math Subscore is less than 25, you are placed based on your Math Index
  
3. Your Math Index is a combination of your ACT Math Subscore and your High School GPA.
  - a. Based on your Math Index, you will be placed in a course in the range from Pre-College Algebra to PreCalculus.
  - b. If you want to take Calculus, you'll take the Compass Exam.
  
4. ACCUPLACER Exam (given during orientation)
  - a. No calculator is allowed.
  - b. Tests your Prealgebra, Algebra, Geometry and Trigonometry skills
  - c. Can be used to challenge your placement based on the Math Index
  
5. COMPASS Exam (given during orientation) for students who want to take Calculus.
  - a. Calculator is allowed.
  - b. Tests your Prealgebra, Algebra, Geometry and Trigonometry skills
  - c. Must be taken if you plan to take Calculus

**More Details Below!**

## Math Placement Information Message 2

### Why is placement so important?

Comment from a Calculus student who *failed* Calculus I last year and is *repeating it* this year:

“I felt sure that I had seen all the algebra and trig topics I would need for Calculus, so I didn’t listen to the recommendations of my professor. I found out I hadn’t seen them all and the problems I needed to do were HARDER than the ones I remembered from High School.”

Taking a course for which you aren’t prepared often means that you fail that course and must repeat it. The placement process exists to help you determine which course you are prepared to take.

Even if you need a higher level class for your degree, you save time and money by taking **and passing** a class for which you are prepared and then being better prepared for the next class.

However, being placed in a course that is too easy means your path to degree completion is longer!

**Therefore, take the ACT and the placement exam seriously. Ensure that these exams reflect your TRUE ability and not whether you got enough sleep the night before the test.**

Be aware that the placement process is not perfect. Students do end up in classes for which they aren’t prepared and some take classes that are too easy for them.

There are many factors that affect your performance in a class that can’t be determined by a test. Your desire to succeed, your willingness to work, the amount of time and effort you commit to the course, and outside influences during the semester all affect your chances of success.

**It is important that you learn, not merely survive, the mathematics you study in high school. You should learn with the goal of retaining and using this mathematics again in your college courses.**

**Your High School GPA is an indicator of the time and focused effort you spend on your courses. A good work ethic is required in order to be successful in an academic environment. Work on increasing your GPA by learning what your teachers are asking you to learn!**

## Math Placement Information

### Message 3

#### Step 1 of the Placement Process: Earned College Credit

##### **AP Credit for Calculus I and/or II:**

If you take and earn a 3 or more on the Advanced Placement AB Calculus Exam, you get College Credit for Calculus I and are automatically placed into Calculus II. (If you pass the BC Exam, you automatically place into Calculus III)

Caution: A score of 3 is an indication that you may not be adequately prepared for Calculus II. Our department recommends that you consider taking Calculus I instead. If you choose to take Calculus I, **DO NOT COMPLETE THE PAPERWORK NECESSARY TO ADD THE AP CREDIT TO YOUR TRANSCRIPT!** For programs that require Calculus, Calculus I is considered your first freshman math course, so taking Calculus I does not put you behind in your program.

For some majors, Calculus I may be all the mathematics required, and you will not have to take any mathematics in college (though you might want to just for fun!).

Note: You may not know the result of your AP exam by the time you arrive at orientation. Discuss this with your advisor at that time. At SDSU you will register for the course in which you are placed, then may make a change once you receive your AP results.

Note: At SDSU, if you take and pass the AP exam for Statistics, you receive credit for Stat 281, but this will not affect your placement for other math courses.

##### **Earning College Credit by Examination:**

It is possible to earn college credit for work you have done in high school by taking and passing a CLEP (College Level Examination Program) exam.

For information about the CLEP at SDSU, go to <http://www.sdstate.edu/aea/examination/clep>. To see which exams are accepted for course credit at SDSU, click in the right column under documents (SD BOR computer based or paper based scores).

To learn more about the exams themselves: <http://www.collegeboard.com/student/testing/clep/about.html>

Note: This exam is not an easy way out of taking a math class. The problems require algebraic skill, ability to apply algebra to real life, and creative thought processes.

##### **Dual Credit:**

Dual credit courses vary greatly in the level of rigor and the amount of time spent in the course. Some dual credit courses are full 3-credit courses taught in 16 weeks by a college instructor and the experience is essentially a college experience. Others are taught by your high school teacher who has been declared qualified by the credit offering institution and is taught over a full year- the same content, but at a different pace than a college course. Be aware of the possible differences and understand that, like any course you take, you should strive for understanding and retention (do more than the minimum) and be prepared for possible different learning experiences when you arrive on campus.

# Math Placement Information

## Message 4

### Step 2 and 3 of the Placement Process

#### ACT Math Subscore, the Math Index and the ACCUPLACER or COMPASS Exam

#### The ACT

Math placement at SDSU is first dependent upon your ACT score.

**Take the ACT seriously** to ensure it measures your true ability!

ACT 25 or Higher

Take: Math 102 (College Algebra), Math 103 (Quantitative Literacy), Math 115 (Precalculus), Math 120 (Trigonometry), Math 121/121L (Survey of Calculus) or Stat 281 (Intro to Statistics)

#### The Math Index

If you earn a 24 or below on your ACT Math Subscore, you are placed based on your Math Index. To find your Math Index, multiply your GPA (out of 4.0) by 250 and your ACT Math Subscore by 17 and add. This is the number that will determine your mathematics placement at SDSU.

#### The Accuplacer Exam

Some students take the ACCUPLACER exam when they come to SDSU for summer orientation. Other schools might use COMPASS, ACCUPLACER, ALEKS or some other test. **Take this test seriously!** Review your math before you go to orientation.

You may take the ACCUPLACER exam if you are placed in Math 095 (PreCollege Algebra) or 102 (College Algebra) based on your Math Index and believe you should be placed higher. You get **ONE** chance and pay a small fee to take the exam.

The ACCUPLACER Exam does not allow you to use a calculator. The test is adaptive, which means the test is different for everyone, and the problems you get are determined by the problems you get correct or incorrect throughout the test. If you blow off the first few problems, you jump to a lower category and are more likely to be placed lower.

Sample questions can be found here:

<http://professionals.collegeboard.com/profdownload/accuplacer-sample-questions-for-students.pdf?CSRF=F04I-LKB2-18EO-LYR6-W4NL-6LZ5-TH3X-4JCG> and <http://accuplacer.collegeboard.org/students/accuplacer-tests>

#### The COMPASS Exam

At SDSU, you **MUST** take the COMPASS exam if you would like to take Calculus (unless you have an appropriate AP Calculus score). Your score will determine whether you take Precalculus, Calculus I, or Calculus I with an additional required lab. **Take this test seriously!** Review your math before you go to orientation.

The COMPASS Exam allows a calculator and is also adaptive. The test is different for everyone and the problems you get are determined by the problems you get correct or incorrect throughout the test. If you blow off the first few problems, you jump to a lower category and are more likely to be placed lower.

Sample Questions for the Compass exam can be found here: <http://www.act.org/compass/sample/index.html>

At the bottom of this page under "More Sample Questions" you'll find .pdf documents that include a list of topics covered in each category of the exam. To place into **Math 123** (Calculus I) you must be able to do almost all of the problems in the "college algebra" and the "trigonometry" categories.

# Math Placement Information

## Message 5

### Choosing a Class

#### Part 1

#### General Education courses offered at SDSU

**Many of these courses are comprised of material you could learn in high school (for free!)**

#### **Math 095 Pre-college Algebra**

You pay extra for this class, and it doesn't count towards the 120 credits required to graduate.

#### **Math 102 College Algebra**

This class counts towards your math requirement for graduation. CLEP exam is available.

#### **Math 103 Quantitative Literacy**

This class counts towards your math requirement for graduation. Here the ideas of algebra are applied in the context of decisions you make every day (budgeting, loans, credit cards, etc.)

#### **Math 115 PreCalculus**

This is a 5-credit class. It counts towards your math requirement for graduation and is a prerequisite for Calculus. CLEP exam is available.

#### **Math 120 Trigonometry**

This counts towards your math requirement, but does not prepare you for Calculus. NO CLEP is available at SDSU.

#### **Math 123 Calculus**

This is a 4-credit class and it counts towards your math requirement for graduation. You must be placed here or have completed earned college credit for PreCalculus. CLEP exam is available. AP course is available in some High Schools.

#### **Math123L Calculus Lab**

This is a 1-credit course required for students who are placed in and are taking Math123, but whose COMPASS scores indicates a weakness in PreCalculus skills. This course is taken along with Math 123 and lets you strengthen your Pre-Calculus skills without forcing you take the full PreCalculus course.

#### **Stat 281 Introduction to Statistics**

This class satisfies your math requirement for graduation and is required in some majors. AP course is available in some High Schools.

## Math Placement Information Message 6

### Choosing a Class Part 2

**You cannot take a Math class *above* your placement.**

**You can take one *below* your placement.**

**If you are worried about your placement being too high, choose a lower level class:**

However, once you take a math class, you must follow the path from that class to your final Math class. For example, if you place in Math 102, but choose to take Math 095, you must finish Math 095 before you can take Math 102.

**Choose the Highest Level for which you are placed and you are comfortable:**

If you are unsure of your major, choose a class at the highest level for which you are placed. Many students who change into a major for which Calculus is required are dismayed to find that College Algebra does not satisfy the prerequisites for Calculus, and they are required to take the 5-credit PreCalculus course before they can take Calculus. If they were placed in this course and had taken it to start, they would have saved some time and money.

#### **Choosing Calculus I?**

If you are taking Calculus I, you will be taking a “Gateway” exam to help you determine whether you are truly prepared for this course. This is not a placement exam, and you are not required to follow the recommendations based on this test, **but** you should consider them seriously. Information can be found here: <http://sdstate.edu/mathstat/for-students/gatewayexam.cfm>

### **What is required in your major?**

The on-line catalog for SDSU can be found here: <http://catalog.sdstate.edu/>

Click Majors and Minors in the Left Column to see what courses are required. If no specific Math course is listed, Math 102, Math 103, Stat 281, or any higher Math class will satisfy the math graduation requirement (SGR Goal 5).

Here is the Path to your final “math destination.” Your initial placement determines how many courses you must take to achieve your math goal. Where will you start?

Example: If you place in Math 095 and hope to take Calculus, it will take you 3 semesters (1 ½ years) before you are able to take Calculus.

<b>Courses needed to Satisfy a General Math Requirement:</b>	<b>Courses needed to get to Calculus:</b>	<b>Course needed to get to Statistics</b>	<b>Courses needed to get to Survey of Calculus</b>	<b>Courses needed to get to Chemistry</b>
Math 095 Math 102 or Math 103	Math 095 Math 102 Math 115 Math 123	Math 095 Math 102 or Math 103 Stat 281	Math 095 Math 102 Math 121	Math 095 Chem 106 and Math102  OR Math 095 Math 102 Chem 112

## Math Placement Information

### Message 7

#### Once you're in College: Things you may not know

1. All 3 credit college classes expect you to spend at least 9 hours per week on the class work (including class attendance) and some require more!!!
2. College is a full time job!!!
3. If you are placed in a pre-general education course (remedial), you must finish that course quickly! Make that class a top priority so you can move on to regular college level courses!
4. A new opportunity offered at SDSU (and many other universities) are **co-requisite courses** that you take with a standard course (such as college algebra, Quantitative Literacy or Statistics). These courses are designed to provide extra help to you have a better chance to be successful in the standard class. Take these co-requisite courses seriously! Students tell us these classes have made a huge difference in how well they did in the regular class!
5. **Calculators are often NOT permitted in freshman math classes! And you will not be allowed to use notes or notecards while taking tests!**

#### **At SDSU:**

- Pre-college Algebra, College Algebra and Survey of Calculus: No graphing calculators allowed (specific scientific calculators only).,
- PreCalculus and standard Calculus courses: No calculators allowed on tests (except in the Honors class).

## Math Placement Information Message 8

**Life changes.**

**You might think now that you will not go to college,  
or that you won't be studying anything that requires math.**

**Be smart now so that you don't limit your options later.**

**Take Mathematics courses every year in High School;** take them seriously, and understand that the ACT, College Placement Examinations and your college professors will expect that you have *retained and can use* your High School mathematics knowledge.

When getting ready to go to college, **know the placement process** and be ready to take a placement test during orientation.

**Know what Mathematics courses are required** for the Majors in which you are interested. Even if your major doesn't seem to be dependent upon mathematics, every degree requires at least one college level mathematics class. You can get prepared for these courses in high school, or you can pay extra to get prepared for them in college.

**Taking a lot of advanced mathematics courses in high school is not as important as understanding and retaining what you learn.** Even for math intensive programs (engineering, mathematics, computer science, etc.), the starting place in college is Calculus I. If choosing between rushing through math courses in order to take Calculus in High School or taking your time and developing a very solid understanding of algebra and trigonometry, the **solid understanding of algebra and trigonometry will serve you better in the long run.**

Your success in College is largely dependent upon **your desire to learn, willingness to work, and time committed to learning.**

## Math Placement Information

### Message 9

#### Why Study Math?

You've heard it from lots of people- math is all around you!

- How much quicker can I get to work if I drive 3 miles per hour over the speed limit?
- Can I really believe what I read on msn news about the dangers of \*\*\*?
- Can I afford this expense given my current salary? Can I afford this long-term expense given my expected salary over the next 10 years?
- How can I arrange personnel so that everyone's contribution is maximized?

Although you may not choose a career where you use the specific techniques you learned in algebra (how many people ever factor a quadratic in their job?), it is true that mathematical or quantitative thinking is all around you. Your future employers will care not only what you know now, but whether you have the **ability to learn and adapt** as the job changes (which it always does). Math courses are an ideal place to develop and demonstrate the **ability to learn**.

## Learning math trains your brain!

## Math Placement Information

### Message 10

**You don't have to convince me, I really enjoy math!**

**Though a mathematics degree is not an easy degree, the reward is a great job!**

<http://www.sdstate.edu/mathstat/career-opportunities.cfm>

**Teaching:** Many of our students want to be teachers because their teachers were a great role model for them. Though the salary is not as high as other mathematical professions, the ability to have a positive impact on the future and to share your love of a subject is incredible.

<http://www.sdstate.edu/mathstat/undergrad/me.cfm>

[http://www.payscale.com/research/US/Job=Mathematics\\_Teacher/Salary](http://www.payscale.com/research/US/Job=Mathematics_Teacher/Salary)

<https://www.youtube.com/watch?v=yjhMsL2X6ug>

**Financial Engineering:** Work as the mathematician in a finance company (bank, credit card, insurance), other business, or governmental agency. Your job is to analyze data and help the organization make better decisions. This also includes actuaries.

<http://www.sdstate.edu/mathstat/undergrad/fe.cfm>

[http://www.payscale.com/research/US/Job=Financial\\_Engineer/Salary](http://www.payscale.com/research/US/Job=Financial_Engineer/Salary)

<http://www.payscale.com/research/US/Job=Actuary/Salary>

[https://www.youtube.com/watch?v=n\\_DdTsOq33g](https://www.youtube.com/watch?v=n_DdTsOq33g)

**Statistician:** Almost every organization collects data and need someone to help understand that data- that's the job of the statistician. Jobs for the government or in the private sector are plentiful!

<http://www.sdstate.edu/mathstat/undergrad/stats.cfm>

<http://www.payscale.com/research/US/Job=Statistician/Salary>

[http://www.payscale.com/research/US/Job=Data\\_Scientist%2c\\_IT/Salary](http://www.payscale.com/research/US/Job=Data_Scientist%2c_IT/Salary)

<https://www.youtube.com/watch?v=BhS1x-yjgPY>

**Computational Science:** Work as the mathematician in a team of scientists or engineers- create models of scientific processes and analyze the data from experiments.

<http://www.sdstate.edu/mathstat/undergrad/cs.cfm>

<http://www.payscale.com/research/US/Job=Mathematician/Salary>

<https://www.youtube.com/watch?v=Pf7ZbM9Fh0U>