

Developing Quantitative Literacy



What is Quantitative Literacy?

Quantitative literacy can be defined as the **level of mathematical knowledge and skills** required of all citizens. It includes the ability to apply aspects of mathematics (including measurement, data representation, number sense, variables, geometric shapes, spatial visualization, and chance) to understand, predict, and control routine events in people's lives.

-- John Dossey, mathematics educator

Quantitative literacy involves understanding the **mathematical concepts and skills that are necessary for everyday life**. It includes computation, interpretation, inquiry, and application of mathematical concepts that are critical for life in the contemporary world.

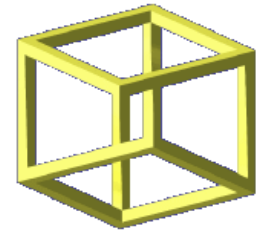
-- Glenda Price, college provost



Quantitative literacy is required in any course that demands precision and accuracy.

Some of these courses include:

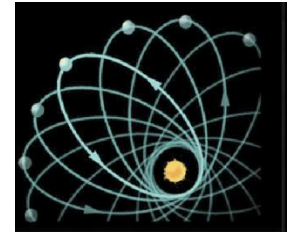
- *Mathematics*: algebra, geometry, probability and statistics.
- *Sciences*: chemistry, biology, anatomy and physiology.
- *Blended courses combining theory and math or science*: physics, economics, engineering, technology, computer science.



Developing quantitative literacy requires quantitative learning.

- Academic self-concept must be positive.
- Attitude must be one for success.
- Must have confidence in ability.
- Must have control over anxiety.
- Must have internal locus of control.

How are quantitative learning courses different than other courses?



- Order and strict sequence of learning.
- Difficult to learn alone without class and instructor.
- Course is highly time consuming and demands a lot of attention.
- Must review information regularly.
- Subject matter is dense: study in short sessions but over a long period of time.
- Instructor does not “tie together” the material. Student achieves this when studying.
- “Supplemental” course materials carry great importance.

Some Quantitative Learning Myths

- I can avoid quantitative learning coursework in college.
- Learning in quantitative learning courses is intuitive or talent-based.
- I can study for a quantitative learning course the same way I do for my other courses.

Why do I often feel anxiety and stress when I'm in a quantitative learning course?

You have to:

- Read very dense material.
- Stay highly focused.
- Keep a rigid time management plan for independent learning, preparation, and practice.
- Try to memorize many facts.
- Make mistakes as you move forward in learning.



Next are some things to consider that can help you deal with stress and anxiety

The Source of Success

Accurate course placement

- Be sure to complete all prerequisites, including any required placement exams.
- This can account for as much as 50% of your success.

Instructor's teaching style

- It's important to adapt your preferred learning style to match the teaching style of the instructor.
- This can account for as much as 25% of your success.

Student's course involvement

- Ask questions in class.
- Form study groups outside of class.
- This can account for as much as 25% of your success.



Aiding Success



- Have a positive attitude.
- Refuse to give up (be persistent).
- Avoid overly emotional or stressful life style.
- Get at least eight hours of sleep.

How does sleep deprivation affect learning in quantitative learning courses?

Symptoms of sleep deprivation include:

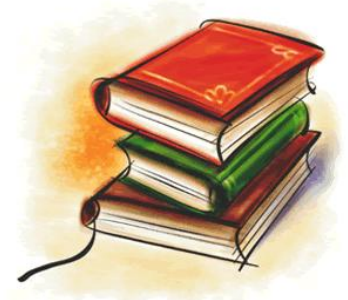
- Lack of concentration
- Feeling sleepy and sleeping in class
- Can't focus
- Can't make decisions
- Can't see complex concept relationships
- Feeling nervous and jittery
- Can't follow complex lectures



These symptoms can affect your success in quantitative learning courses.

Quantitative Learning: Reading

- Keep a term glossary.
- List out all steps in any sequence taught.
- Mark and ask about unfamiliar material.
- Be persistent, re-read until understanding starts to happen.
- Read very slowly, lip-read or read out-loud if possible.
- Read dense material in very short sessions to avoid burn-out.
- Compare text to lecture notes.



Quantitative Learning: Note-taking



- Try reorganizing or rewriting your notes to reflect one concept at a time.
- Clearly label your notes with dates and exact topics.
- Take your own notes whenever possible. Note taking is a part of the learning process.
- If instructors provide copies of power point slides or notes, “process” these to your own understanding by re-writing in your own words.
- Use graphics, time lines and mind maps to illustrate your notes and your understanding of the material.
- Review all your notes frequently.

Quantitative Learning: Test Taking Tips



- Remain calm.
- DON'T RUSH!
- Preview the test before you start.
- Allot adequate time and be sure not to leave the test early.
- Do easier questions first.
- Review your answers before handing in the test.
- Always, always, analyze your test errors when you get the test back to understand WHY you got a test question wrong.

Remember...



- Quantitative learning is a process.
- To be successful, you must first master the basics before moving on to the next level. This takes time and dedication.
- A positive, confident attitude and a desire to succeed will help you improve your quantitative literacy.

Student Success Centers

For more information on being a successful college student contact the Student Success Center.

119 Payson Smith Hall, Portland
780-4040

119 Bailey Hall, Gorham
780-5652

119 Lewiston-Auburn College, Lewiston
753-6500

or e-mail: studentsuccess@usm.maine.edu

Student Success Advisors are available to help you.