

A general introduction

1 unit is (at least) 45 hours of work per semester

“Traditional accounting” for one unit:

- 1 hour of lectures per week
- 2 hours of discussion sections per week
- 3 hours of lab work per week

Ramifications for USC's 15-week semester:

- 1 unit is 3 hours of work per week
- 16 units = 48 hours of work per week
- a 4-unit (math) class = 7 hours of *independent* work per week

And this is the bare minimum!

Key equality: $24 \times 7 = 48 + 60 + 60$.

An absolute grading scheme

A	100–95
A-	94–90
B+	89–87
B	86–83
B-	82–80
C+	79–77
C	76–73
C-	72–70
D+	69–67
D	66–63
D-	62–60
F	59 and below

Think!

Quotation number 1, A variation on *Bertrand Russell* (1872-1970):

Most people would rather die than think; in fact, many do so.

A follow-up by Yu. I. Manin (1937–2023), from an interview in 2015:

Think! Otherwise no Google will help you.

Quotation number 2, at the entrance to main auditorium at Uppsala University:

Tänka fritt är stort men tänka rätt är store.

A follow-up by Georg Cantor (1845–1918), as presented by Yu. I. Manin at ICM Berlin in 1998:

The essence of mathematics lies in its Freedom.

A quotation:

Education is what you get when you read the fine print.
Experience is what you get when you do not.

Unknown, on investing.

A generalization:

Education is what you get when you **< DO >**.
Experience is what you get when you **< DO NOT >**.

Also:

Education is what is left after you forget everything you studied for
the final exam.

The 7%-38%-55% rule

COMMUNICATION:

- **Verbal** (words): 7%
- **Vocal** (tone of voice): 38%
- **Visual** (body language): 55%

Source: Albert Mehrabian (Professor of Psychology at UCLA, b. 1939) studies on communication in 1960's.

The fine print: This only applies to messages pertaining to feelings and attitudes.

Conclusion: For a (math) lecture, make it 100% verbal (lecture words) and visual (blackboard and/or video).

Another meaning: stone

The people

Sir Isaac Newton (1642–1727), British (1666, 1687)

Gottfried Wilhelm von Leibniz (1646–1716), German (1675)

Jacob (Jacques, James) Bernoulli (1654–1705), Swiss

Johann (Jean, John) Bernoulli (1667–1748), Swiss

Leonhard Euler (1707–1783), Swiss

Pierre-Simon Laplace (1749–1827), French

Jean Baptiste Joseph Fourier (1768–1830), French

Augustin Louis Cauchy (1789–1857), French

Karl Theodor Wilhelm Weierstrass (1815–1897), German

Josiah Willard Gibbs (1839–1903), American

Go steady but not too slow

A worm at one end of a rubber band. Worm: moves at the speed of 1 centimeter per minute. Band: one meter to start, stretches by one meter every minute. When will the worm get to the other end, if ever?

The meaning of slow

It will, eventually, in about 10^{37} years.