Effective study skills:
Reading &
Notemaking

Student Learning Development,
Trinity College Dublin

http://student-learning.tcd.ie
Learning Objectives

• Learn active, deep processing strategies
• Explore the different purposes for study tasks
• Learn about active reading and note-making
• Practise using learning strategies
Active studying means

1. Working with the material to try to build understanding

2. Find a way process the information in a deep and meaningful way

3. Make your study more alive
How?

Have a framework

– Think about the purpose of the study task
– Consider the best way to approach it
– Reflect and review

PSR

– Purpose – why?
– Strategy – how?
– Review – check!
Good Reading is like Interrogation – what is the purpose, why are you reading? What are you looking for?
Get Thinking - Reading

1. Ask questions
2. What is the point of view of author?
3. Evaluate evidence
4. Form opinions
Get reading – actively!

Purpose

• Strategies to suit:
  – Surveying/Skimming
  – Scanning
  – In-depth/close
  – SQ3R (Survey, question, read, recite, review)
  – Note making
  – Understanding or memorising?
Exercise

• ‘A’ students look for the gist of the piece
• ‘B’ students read for understanding
• ‘C’ students find what ‘emotional exhaustion’ means.
Memorising

- Rhymes/songs adapted
- Associations –
- Acronyms- SMART
- Imagery – your body’s muscles
- Categorising – smaller groupings
- Creative sentences – two old angels skipped over heaven carrying a harp
Ebbinghaus Forgetting Curve

Schedule Time for Reviews
Reading List:

Judd, C., Smith, E. and Kidder, L. 1991
300.Jud (1 copy)

Moser, C. A. and Kalton, G. 1971
300.723 Mos (10 copies)

Oppenheim, A. N. 1966, 1973
*Questionnaire Design and Attitude Measurement.* London.
011.422 Opp (3 copies)

Hoinville, G. Jowell, R. and associates. 1978
*Survey Research Practice.* London.
300.723 Hoi (1 copy)

Rose, G. 1982
*Deciphering Sociological Research.* London.
301.072 Ros (4 copies)

Kurtz, N. R. 1983
*Introduction to social statistics.* London etc.
300.72 Kur (4 copies)

Blalock, H. M. 1960
*Social Statistics.* London.
301.072 Bla (2 copies)

ESRI Reports: Read at least one of these research reports based on a social survey.
Reading List

• You can’t cover 100% of the course, and the content is more difficult, requires time to understand.
• Have to be smart about what to cover
Being Selective

• Ask lectures/tutors what is most relevant
• Be alert for hints and clues
• Ask fellow students
• Ask students in years ahead
• Share reading
• Preview or skim before in-depth reading
Copying – doesn’t activate your brain
Notes

Source → Your Summary Notes → Review Notes → Exams
Or
Essays
What to take notes on in Lectures

– Big Picture
– Main Points
– Premises or Hypothesis
– Sources, arguments
– Theories or concepts
– What is the lecturer emphasising
– Don’t need to take down every word

Date/number pages/lecturer’s name/module
Notes from text

• Read text to understand
• Put text away
• Write summary/main points of text
• Ensure formulae/dates etc are exact
• Check notes against text
• Write reference of the text you’re using
Types of Notes

1. Prose or summary
2. Outline or skeleton
3. Mind or concept maps
4. Cornell or 2 Column

How do you take notes?
Be careful with tan⁻¹

Because tan⁻¹ returns values between −\frac{π}{2} and \frac{π}{2}, the formula arg(x+iy) = tan⁻¹(y/x) only works if x > 0. This can cause problems in e.g. Qs 2vi and 10 of Complex Methods Sheet 1.

2vi Where is \( \frac{2xy}{x^2-y^2} \) harmonic and find an analytic function whose real part is \( u \).

First we determine where it is definitely not harmonic. Consider the lines \( y = \pm x \).

As \((x,y)\) approaches the line \( y=x \) from below \((x,y>0)\) (see picture), we have
\[
\frac{2xy}{x^2-y^2} \to \infty, \text{ so } u \to +\frac{\pi}{2}.
\]

If we approach from above, \( u \to -\frac{\pi}{2} \), so \( u \) is discontinuous. Similarly in the other quadrants.

So we assume \( x^2 \neq y^2 \). If \( x = r \cos \theta \), \( y = r \sin \theta \) then \( u = \tan^{-1} \tan 2\theta \), which equals \( 2\theta \) provided \(-\frac{\pi}{4} < \theta < \frac{\pi}{4}\). In this case, we can
The Art of Reading Actively

A. Active = purposeful, critical, questioning.
B. Look for Main Ideas
   1. Survey (SQ3R) for general ones (Ch 5)
   2. Read paragraphs for more specific ones
      a) Each para usually has one main idea.
      b) Usually in topic sentence (1st or last?)
C. Look for Important Details
   1. e.g. proof, example, support for main idea
   2. Usually at least one per main idea
   3. Which do I consider important?
D. In hunt for main idea and important details:
   1. Watch for signposts
      a) Visual (layout, etc.)
      b) Verbal (clue words)
   2. Study diagrams, etc.
   3. Don't ignore difficulties
E. Evaluate the text
   1. Be sceptical (Expect the author to prove)
   2. Compare with my own experience
   3. What do I get from it?
   4. Discuss with other students
F. Make Notes:
   1. If I need them (for my purposes)
   2. At Recall stage (of SQ3R)
   3. Compare with other students
G. Concentrate:
   1. By seeking understanding (not memorisation)
   2. and see Chapter 4 hints.
H. Vary reading speed:
   1. according to purpose
   2. but not at expense of understanding.
Concept Maps

Photosynthesis

- CO₂
  - Taken in via stomata
  - From air

- H₂O
  - Split to give H atoms + oxygen
  - From soil by osmosis

- Chlorophyll
  - Absorbs red & blue light
  - Traps energy in chloroplasts

- Sugars
  - From CO₂ + H atoms
  - Converted to starch
CI & C2

- Algebra & Functions
- Quadratic Functions
  - Completing the square
  - Formula
  - Sketching
- Simultaneous Equations
- Inequalities
- Surds
- Factor theorem
- Remainder theorem
- Finding roots
- Rules of indices
- Dividing polynomials
- Exponential equations
- Reciprocal equations
- Logarithms
- Trigonometry
- Coordinate Geometry
- Sequences & Series
- Integration
- Differentiation
- Exponential & Log
- Probability
- Circles
- Trigonometric identities
- Area & Volume

Mind Maps
Hierarchy Maps

http://www.texample.net/tikz/examples/feature/trees/
Motion repeats
force is proportional to displacement, in the opposite direction (as \( F = ma \)
this is also true for acceleration)

\[
\text{\( a = -\omega^2 y \)}
\]
and as \( F = ma \),
also \( F = -\omega^2 y \).

NOT \( \text{SHM} \) if the force is not changing
e.g. only force acting is gravity.

These can be proved by using the reference circle.

Equations
Starting at the equilibrium position, \( y \) increasing

\[
\begin{align*}
\dot{y} &= A \sin \omega t \\
\dot{v} &= A \omega \cos \omega t \\
\ddot{a} &= -A \omega^2 \sin \omega t
\end{align*}
\]

Starting at maximum displacement

\[
\begin{align*}
\dot{y} &= -A \cos \omega t \\
\dot{v} &= -A \omega \sin \omega t \\
\ddot{a} &= A \omega^2 \cos \omega t
\end{align*}
\]

Period = time for one oscillation
(left to right and back again or
up, down and back up)

\[
T = \frac{2\pi}{\omega}
\]

pendulum

Spring

\[
T = 2\pi \sqrt{\frac{m}{k}}
\]

Know what affects the period of each eq. pendulum \( T \) not affected by mass.

Resonance

Energy is added by applying a force. Gives
large amplitude if it is in time with
natural frequency

\[
A = \frac{F}{\omega^2}
\]

\[
\text{gradient of y=f(t) graph gives velocity}
\]

\[
E_p = \frac{1}{2} kx^2 \\
E_k(\text{at } x=0) = \frac{1}{2} mv^2
\]

Time (F)

Displacement (y)

Energy

- kinetic
- gravitational
- potential for a pendulum
- elastic potential for a spring

Total energy is constant
\( E = E_k + E_p \)

Total energy
max = max kinetic energy
max = max potential energy

Reference Circle

Vectors
\( F \) and a
opposite direction to \( y \)

for pendulums
and springs

Horizontal
\( \text{SHM} \)
\( \text{eq pendulum} \)

Damping
Due to energy being converted
to heat, because of friction &
air resistance

Decay envelope

Displacement (y)

Time

Amplitude

Frequency
### The Cornell Note-taking System

<table>
<thead>
<tr>
<th>2 1/2”</th>
<th>6”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cue Column</td>
<td>Notetaking Column</td>
</tr>
<tr>
<td>Write Keywords or Questions here</td>
<td>Write brief notes here as you are reading a book OR during a lecture</td>
</tr>
<tr>
<td>2”</td>
<td>Summary</td>
</tr>
<tr>
<td>Write a short summary of the page here</td>
<td></td>
</tr>
</tbody>
</table>
### Types of Matter

**Solids**
1. Solids
   - Have a definite shape
   - Have a definite volume

**Liquids**
2. Liquids
   - Do not have a shape
   - Have a volume
Thank you for your time

Please give us your feedback on this workshop.
Log on to:

http://www.surveymonkey.com/r/sldor1
SLD Blackboard module

ASSL - Academic Skills for Successful Learning

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Email Qs to student.learning@tcd.ie

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