

Féidearthachtaí as Cuimse
Infinite Possibilities

Numeracy Meet 3 : Financial Numeracy

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Dr Fiona Faulkner
fiona.faulkner@tudublin.ie

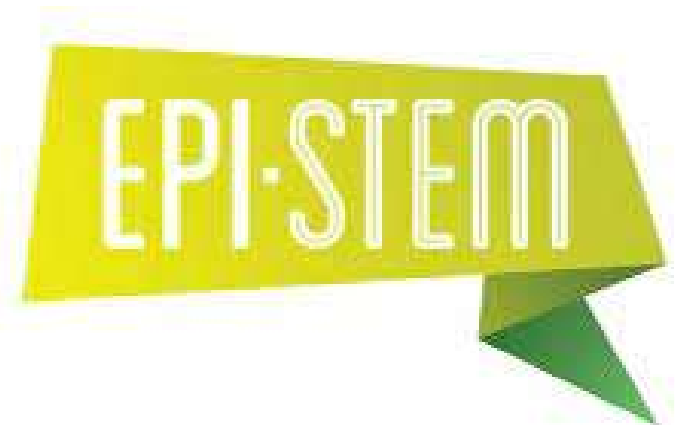


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DUBLIN
OLLSCOIL TEICNEOLAÍOCHTA
BHAILE ÁTHA CLIATH
TECHNOLOGICAL
UNIVERSITY DUBLIN

Lecturer of Maths



Lecturer of Maths Pedagogy



National Centre for STEM Education

Areas of research interest:

Access Education:

- Progression factors to undergraduate education

Mathematics Education:

- Adult Maths Education
- Mathematics diagnostic testing: Problem solving and procedural skills
- Profiling at risk students in mathematics

Continuous Professional Development:

- Out-of-field teachers of mathematics
- In-service and pre-service teachers of mathematics



It incorporates basic numeracy, literacy and reading skills and is an important consideration for financial institutions and adult literacy and numeracy providers (NALA, 2005).

WHAT IS FINANCIAL NUMERACY?

“the ability to make informed judgements and effective decisions about using and managing money” (NALA, 2012, p. 9).

WHY IS FINANCIAL NUMERACY IMPORTANT?

- Important for inclusion in society
- Can be seen to counteract financial vulnerability
- Therefore, enables citizens to be empowered and
- Stabilises financial systems ((OECD/INEF, 2020)

Link between poor numeracy and Financial wellbeing: Lusardi (2019) argues financial education is needed to help people counteract ineffective spending and expensive borrowing by learning about financial planning and debt management.

Research on Financial Numeracy

- Mathematics has been said to be the key component in becoming financially literate (Baron, 2015) therefore having a doubly positive impact on citizens skills sets.
- Kelly (2022) links Financial literacy, numeracy skills and family learning and highlights that the focus and reasons for developing financial and numeracy skills change over time.



Research on Financial Numeracy: OECD investigations

- Launch of the OECD/INFE 2020 International Survey of Adult Financial Literacy
 - Twenty-six countries and economies, including 12 OECD countries, participated in this international survey of financial literacy.
 - The overall financial literacy score measures a set of basic financial knowledge, behaviours and attitudes.
 - Scoring the maximum of 21 effectively means that an individual has acquired a basic level of understanding of financial concepts and applies some prudent principles in their financial dealings.
 - Individuals across the entire sample on average scored only 12.7 or just under 61% of the maximum financial literacy score, which represents a basic set of knowledge concepts and financially prudent behaviours and attitudes.
 - Room for improvement.



Research on Financial Numeracy: The Irish Context

In 2005 NALA published **Financial Literacy: improving understanding, creating opportunity**.

The research shows that, in Ireland,

- 39% of adults had problems understanding financial terms.

Some of the main findings from the report were that:

- Ireland is lagging behind other western nations in relation to understanding and dealing with financial literacy; and
- low financial literacy is a growing concern for adult learners and literacy programmes and will continue to grow as banking products become more complex and are sold or delivered by Internet, ATM and other self-banking systems (NALA, 2005).



TU DUBLIN – FINANCIALLY FIT FRIDAYS!

Topics covered:

- Wills and Inheritance
- Smart Money: Understanding Payslips, Car, Home and Health Insurance, Savings options



FINANCIAL NUMERACY ACTIVITIES AND RESOURCES

Across all FETAC Levels

Practical Example: Profit and Loss

Movie theater
popcorn has an
average markup
of 1,275 percent!

TELL ME MORE



Task: Get students to calculate the markup and margin of a product or service:

1. First watch this video and discuss the key findings:

Video explaining the basic idea

<https://www.youtube.com/watch?v=ITdK3y7tA04>

2. Consider the following figures:

Sending Text messages:

Cost to company	Cost to user
3/10's of a cent	20 cent

What do you think when you see these figures?
Discuss.

3. Convert both to decimal format and calculate the markup and the margin on the text messages?

Additional Task: Get students to think of products and services they think may have a big mark up and margin and investigate them. Report back on what you found out and how this will change your behaviour (if at all).

Income Tax and USC

Rachel's first pay slip!

- <https://www.youtube.com/watch?v=whf3S85q0bk>



Income Tax



TAX ENTRY POINT FOR
SINGLE EARNERS

↑ €34,550

USC ENTRY POINT

€13,000

BUDGET 2018

RTE News

Practical Example: Income Tax and USC

Rates

If your income is €13,000 or less, you pay no Universal Social Charge (USC). Once your income is over this limit, you pay the relevant rate of USC on *all* of your income. For example, if you have income of €13,000 you will pay no USC. If you have income of €13,001 you will pay 0.5% on income up to €12,012 and 2% on income between €12,012 and €13,001.

Standard rate of USC (2022)

Rate	Income band
0.5%	Up to €12,012
2%	From €12,012.01 to €21,295
4.5%	From €21,295.01 to €70,044
8%	From €70,044.01 and over
11%	Self-employed income over €100,000

Task: In teams find out the following:

What will a person earning €50,000 have to pay in tax in a year?

What will a person earning €13,000 have to pay in tax per year?

What will a person earning €13,100 have to pay in tax per year?

Once you have attempted the above questions use the following link to check you proposed answers:

https://www.citizensinformation.ie/en/money_and_tax/tax/income_tax/universal_social_charge.html

8 DECENT WORK AND
ECONOMIC GROWTH



PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH,
FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

Practical Example:
Savings and Simple and
Compound Interest in
SDG Context

See handout....



Practical Example: Simple and Compound Interest

- **Pattern Based approach**

Simple Interest Table

Suppose you want to invest €6,000 for 3 years at 4.5% p.a.(per annum) simple interest

Year	Principal at the start of the year	Interest earned	Amount at the end of the year
1	€6,000	€270	€6,270
2	€6,270	€270	€6,540
3	€6,540	€270	€6,810

What do you notice? What pattern can you see?

Can you say in words how you are working out the amount at the end of each year?

$$I = \frac{R}{100} \times P \times T$$

Pattern Based approach

Compound Interest Table

Suppose you want to invest €6,000 for 3 years at 4.5% p.a.(per annum) compound interest.

Year	Principal at the start of the year	Interest earned	Amount at the end of the year
1	€6,000	€270	€6,270
2	€6,270	€282.15	€6,552.15
3	€6,552.15	€294.85	€6,847

What do you notice? What pattern can you see?

How does it differ from the simple interest pattern?

Can you say in words how you are working out the amount at the end of each year?

$$A = P(1 + r/n)^{nt}$$



FINANCIAL NUMERACY ADDITIONAL RESOURCES

Across all FETAC Levels

MONEY MATTERS PROJECT

Erasmus + project that seeks to help disadvantaged families develop their financial literacy skills and knowledge.

Aims to develop the financial literacy skills of a network of educators trained to use a pedagogic approach that includes the whole family utilising both online games and apps as well as comic book resources to help achieve greater financial wellbeing.

Link: <https://docs.google.com/spreadsheets/d/1cQEyUErrksvhpDhDSfuAsQtqPTBulf49Lb9TVT5R4wg/edit?usp=sharing>

A WEALTH OF PRACTICE: CASE STUDIES OF FINANCIAL NUMERACY PRACTICE IN IRELAND

<https://www.nala.ie/wp-content/uploads/2019/08/A-wealth-of-practice-case-studies-of-financial-numeracy-practice-in-Ireland.pdf> ice-case-studies-of-financial-numeracy-practice-in-Ireland.pdf

NALA has three websites dedicated to providing learning and support around financial numeracy:

- www.makingcents.ie
- www.financialliteracy.ie
- www.writeon.ie



**QUESTIONS?
COMMENTS?
CONTRIBUTION OF
IDEAS?**

ALL WELCOME 😊

fiona.faulkner@tudublin.ie