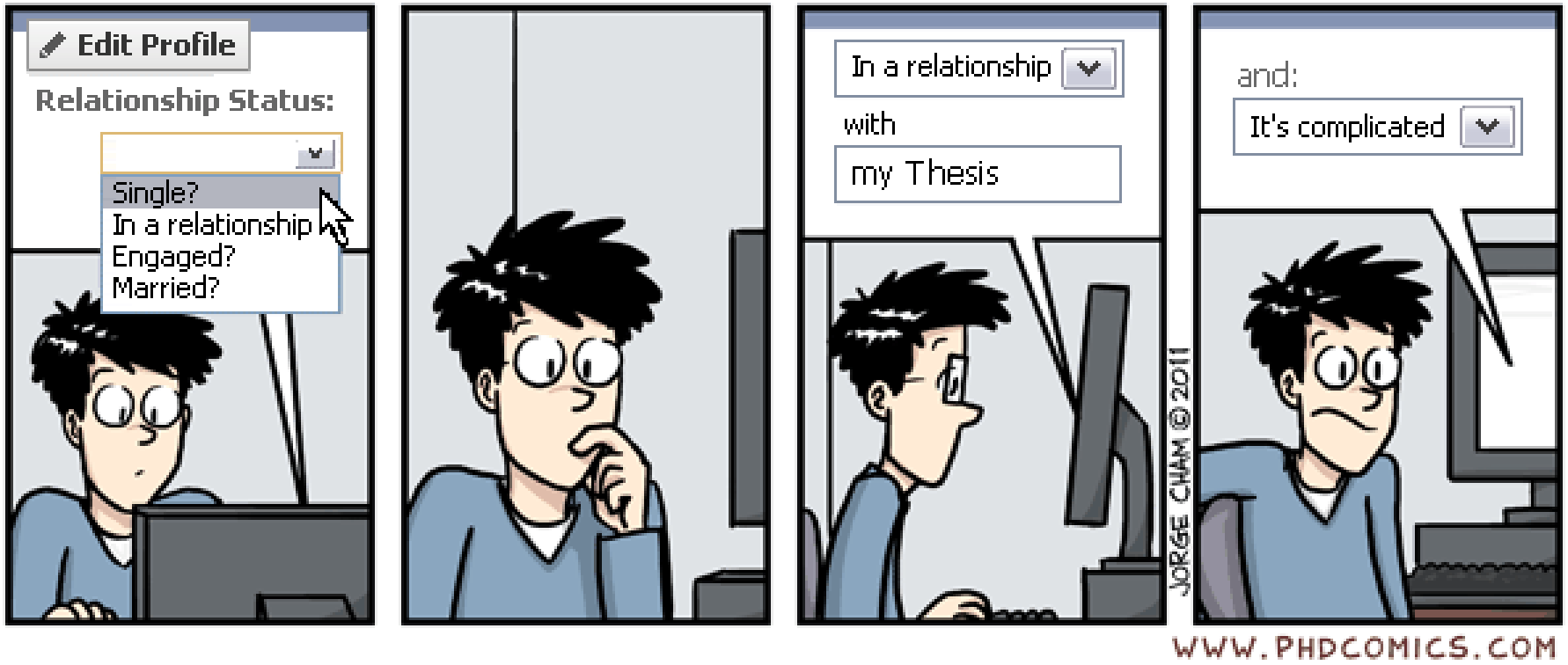
SCHOOL OF SCIENCE & TECHNOLOGY

MSc Dissertation Guidelines



INTERNATIONAL HELLENIC UNIVERSITY

Dissertation Fundamentals

- A master dissertation is required to be a piece of advanced independent work.
- It must reflect a student's success in undertaking more advanced and intensive study than would a project prepared for a first degree course, building upon and extending prior knowledge and skills.
- It is a major piece of original academic work, displaying evident critical analysis of both the existing literature and of diverse research techniques.
- It requires a student's full commitment and dedication.
- It is also, however, a rewarding experience which can also be highly enjoyable, personally fulfilling and may lead to further research, academic or professional opportunities.

INTERNATIONAL HELLENIC UNIVERSITY

Dissertation Fundamentals

- The Master's dissertation tests your ability to
  - to analyse a given problem
  - apply a certain methodology and approach
  - to demonstrate reasonably original research work

INTERNATIONAL HELLENIC UNIVERSITY

- Students are supervised throughout their projects by a member of the academic faculty.
  - Supervisors act as consultants and counselors in matters of research process and practice
  - Students are expected to become the experts in the topic they selected for research and take responsibility for their work.

Dissertation Fundamentals

INTERNATIONAL HELLENIC UNIVERSITY

Dissertation Fundamentals

- After the submission of the dissertation, the students will present their projects to their classmates and the school's academic staff.
- The Dissertation will be assessed by a three-member academic committee.

INTERNATIONAL HELLENIC UNIVERSITY

(Indicative) Dissertation Outline

Chapter	Milestone	Length
Title Page		1
Contents	Table of contents, table of figures etc.	2
Abstract		1
1	Introduction	5
2	Literature Review	25
3	Problem Definition/Materials & Methods	10
4	Contribution/Experiments	35
5	Conclusions	5
References	References and bibliography	-
Appendix		-
	Total pages (minimum)	**80**

INTERNATIONAL HELLENIC UNIVERSITY

Introduction

- A “spoiler” for what will follow.
  - In 5-10 pages you should provide the reader with a clear and complete picture of your entire dissertation.
- Explain clearly and briefly
  - the problem
  - why is it important
  - your solution
- Describe the structure of the dissertation
  - e.g. *“Chapter 2 contains the related work [...] the problem is defined in Chapter 3 [...]*

INTERNATIONAL HELLENIC UNIVERSITY

Literature Review

- A literature review is an account of what has been published on a topic by accredited scholars and researchers.
  - Select the most significant and the most relevant to your subject
  - Mention their strong/weak points
  - **Summarize their main features** **in your own wording**
  - Explain where your work fits in

INTERNATIONAL HELLENIC UNIVERSITY

- Go to Google Scholar and start looking at papers that
  - have a particularly high number of citations,
  - they are not too old (preferably published in this century…)
  - and they appear in an esteemed journal/conference.
- Check their references & bibliography. They usually have cited relevant papers
- Check what else the authors have published in the same topic.

Literature Review

INTERNATIONAL HELLENIC UNIVERSITY

- For a **Systematic Literature Review (SLR)** you should follow a more strict methodology:
  1. Define your Research Questions
  2. Define your Eligibility Criteria
     - E.g. define a time frame, scimago journal ranking quantiles and other inclusion/exclusion criteria
  3. Search the literature using different sources, using the same query (keywords, phrases etc.)
     - Google scholar, SCOPUS, google search etc.
  4. Practical Screening: Apply eligibility criteria
  5. Quality Screening: the results based on their quality
  6. Data Extraction: Extract the applicable information from each study
  7. Synthesis: Combine and relate the facts using qualitative and/or quantitative techniques.
  8. Writing of the SLR, starting with the description of the above process.

Systematic Literature Review

INTERNATIONAL HELLENIC UNIVERSITY

Systematic Literature Review

- A Systematic Literature Review is generally more preferable because:
  - Follows a strict protocol with specific questions and criteria
  - It allows the reader to replicate the process
  - It removes any bias toward the selection or exclusion of sources

INTERNATIONAL HELLENIC UNIVERSITY

- Design a sound methodology
- e.g.
  - problem definition & mathematical formulation
  - find data/take measurements
  - select the right technologies/tools etc.
  - set up and perform experiments/build models/take surveys
  - evaluate/assess the experimental results
  - draw conclusions
- Include your opinion/stance on the subject
- Solve or propose solutions to problems you encounter

Contribution

INTERNATIONAL HELLENIC UNIVERSITY

Appendices

- This is where you place any information whose inclusion is not central to the main body of the report but which explains, amplifies or puts in context the arguments and evidence you have presented there.
  - e.g. source code snippets, sample data, laws and regulations etc.
- Any material in an appendix does not count towards the page length, nor will it attract any marks.
- A clear reference to the appendix must be made in the main text.

INTERNATIONAL HELLENIC UNIVERSITY

Dissertation Key Points

- **Define the problem** you will tackle
  - clearly and from the beginning
- **Why** is it important?
  - not only scientifically, but also socially, economically, environmentally etc.
- **How** are you going to approach it?
  - define your goals and set up a sound methodology
- **Related work** (lit. review)
  - what has been done/written/proposed by others?
- Why is your approach **better/worse/different**?
  - what are its **strengths/weaknesses**?
- **Conclusions** and Future Work

INTERNATIONAL HELLENIC UNIVERSITY

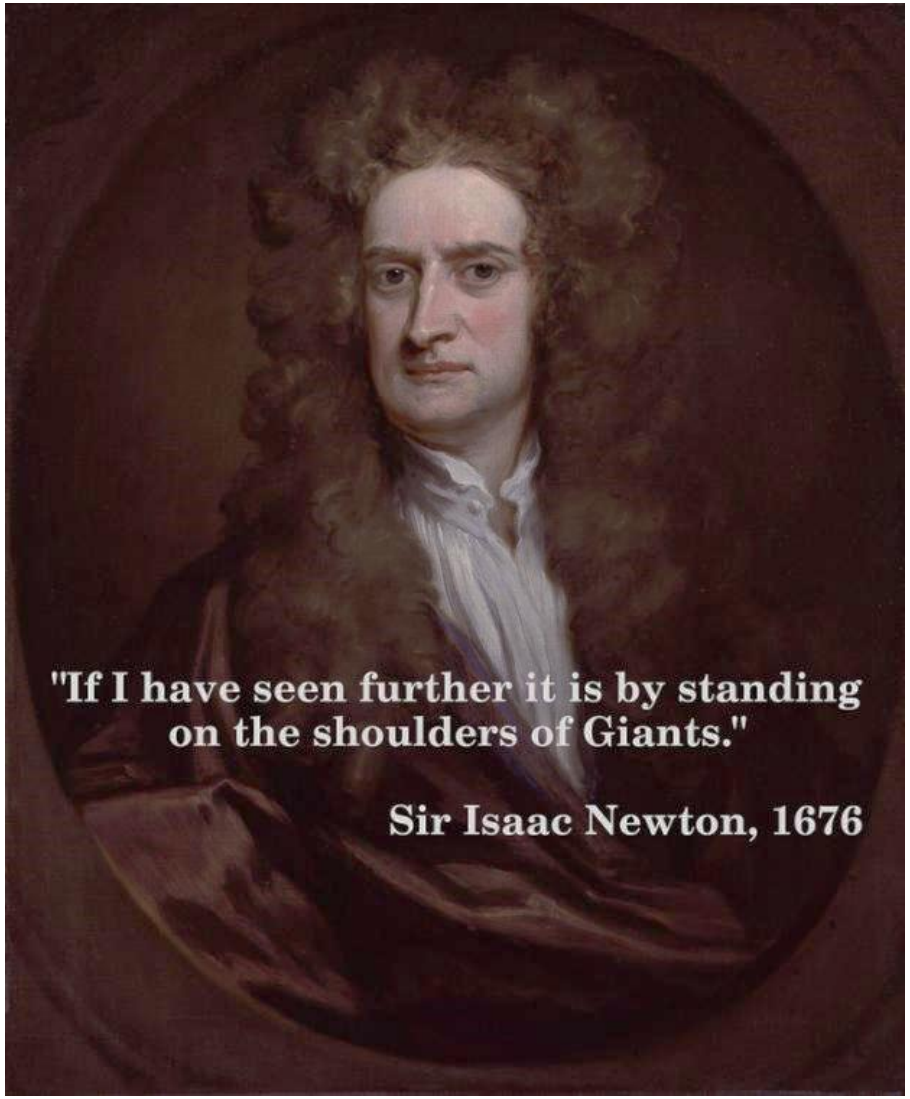
- Provide (valid) data to back your claims

“In God we trust; all others must bring data.”
W. Edwards Deming

Hints & Tips

INTERNATIONAL HELLENIC UNIVERSITY

- Support your arguments by
  - referring to
  - comparing to
  - extending or building upon very important/influential people or approaches



Hints & Tips

INTERNATIONAL HELLENIC UNIVERSITY

Hints & Tips

- Prepare a “demo”
  - something that can be demonstrated to non-academics, e.g.
    - a prototype software with a reasonably friendly user interface
    - a webpage with a description of your project, images, screenshots, source code, graphs, results etc.
- Very useful for job interviews!
  - also for your dissertation presentation (10% of your grade!)

INTERNATIONAL HELLENIC UNIVERSITY

Time Planning

Mile-stones	Date	Milestone
5	December 12th, Thursday	Presentation
4	**December 2nd, Monday**	**Submission Deadline**
3	Novermber 8th, Friday	All Chapters except from the Conclusions and the additional material
2	September 16th, Monday	Interim report
1	July 19th, Friday	Dissertation Roadmap (finalised)

- You must submit your chapters by the dates defined above to the e-learning platform http://elearn.ihu.edu.gr

* All milestones are mentioned in you **Student's Handbook**

19
JUL

INTERNATIONAL HELLENIC UNIVERSITY

Dissertation Roadmap

- A commonly agreed text adopted by both you and your supervisor
  - A “contract”/”MoU”
- Prepare a possible “Table of Contents”, with chapter and section titles.
  - Every section should contain a few sentences describing what you intend to include.
  - Define your goals and expected outcomes, along with (internal) deadlines
  - When it’s finalised, submit it to the e-learning platform http://elearn.ihu.edu.gr

16
SEP

INTERNATIONAL HELLENIC UNIVERSITY

- A Roadmap updated with your progress to this point
  - Include everything you've done so far, even if it's not final
  - Update the remaining chapters/sections/goals according to possible new findings and new goals
  - Submit it to the e-learning platform http://elearn.ihu.edu.gr

Interim Report

8
NOV

INTERNATIONAL HELLENIC UNIVERSITY

- "Pre-final" version of your dissertation
  - Include all chapters except maybe the conclusions, appendices and any other additional material
  - Update Roadmap
  - Submit it to the e-learning platform http://elearn.ihu.edu.gr

Main Chapters

2
DEC

INTERNATIONAL HELLENIC UNIVERSITY

- This is the final version of your dissertation, which will be graded.
- Submit it to the e-learning platform http://elearn.ihu.edu.gr

Submission Deadline

INTERNATIONAL HELLENIC UNIVERSITY

You and your Supervisor

- It is essential for you to keep in touch with your supervisor, who will guide you throughout your dissertation.
- **YOU** should arrange meetings and phone/skype calls.
  - Keep your supervisor informed of your progress
  - Ask for his/her guidance. He/she will assess your work in the end
  - Your supervisor is under no obligation to chase you
- **Give your supervisor sufficient time to read your material in order for you to receive good feedback.**
- Create a cloud folder (google drive, dropbox, onedrive etc.) with **all** the material.
  - Your text, papers and data you have collected, your code etc.
  - Share it with your supervisor.

INTERNATIONAL HELLENIC UNIVERSITY

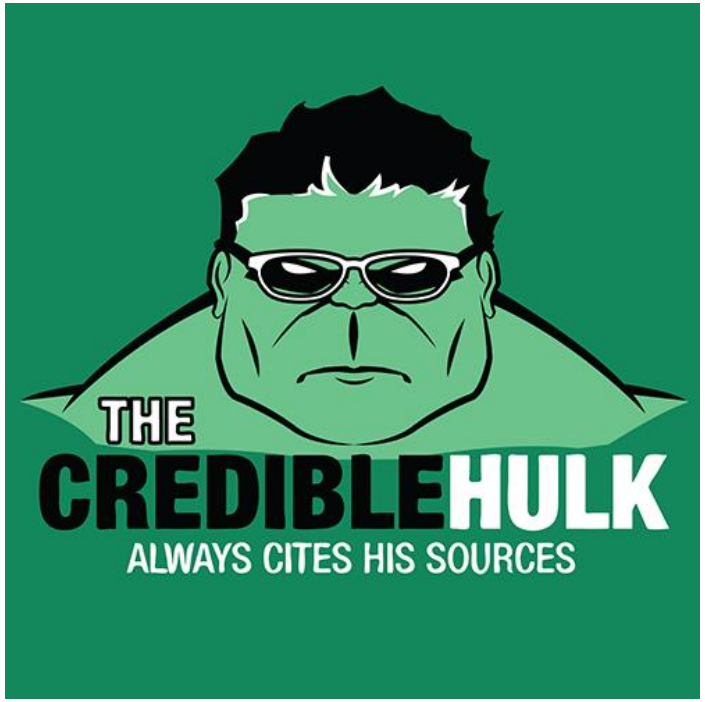
You and your Supervisor

- YOU SHOULD NOT
  - Expect your supervisor to be a proof reader.
    - He/she is there to give you guidance, not to do the work for you.
  - Miss appointments unless it is absolutely unavoidable.
    - If you are likely to miss an appointment ensure that you inform your supervisor as soon as possible.
  - Go to meetings unprepared or without an agenda
    - You should prepare and send an agenda with the issues you want to discuss as well as your material, before the meeting.
  - Expect your supervisor not to take time off
    - September is also a “conference” month…

INTERNATIONAL HELLENIC UNIVERSITY

Citing Your Sources

- When writing your dissertation you must always give **credit** by citing your sources.
  - Includes information directly used or quoted, as well as paraphrased.
  - The only exception is commonly known facts
  - Using information fairly and acknowledging sources accurately is an essential part of any research project
  - Your goal is to provide readers with information about your sources and where they can find them.



INTERNATIONAL HELLENIC UNIVERSITY

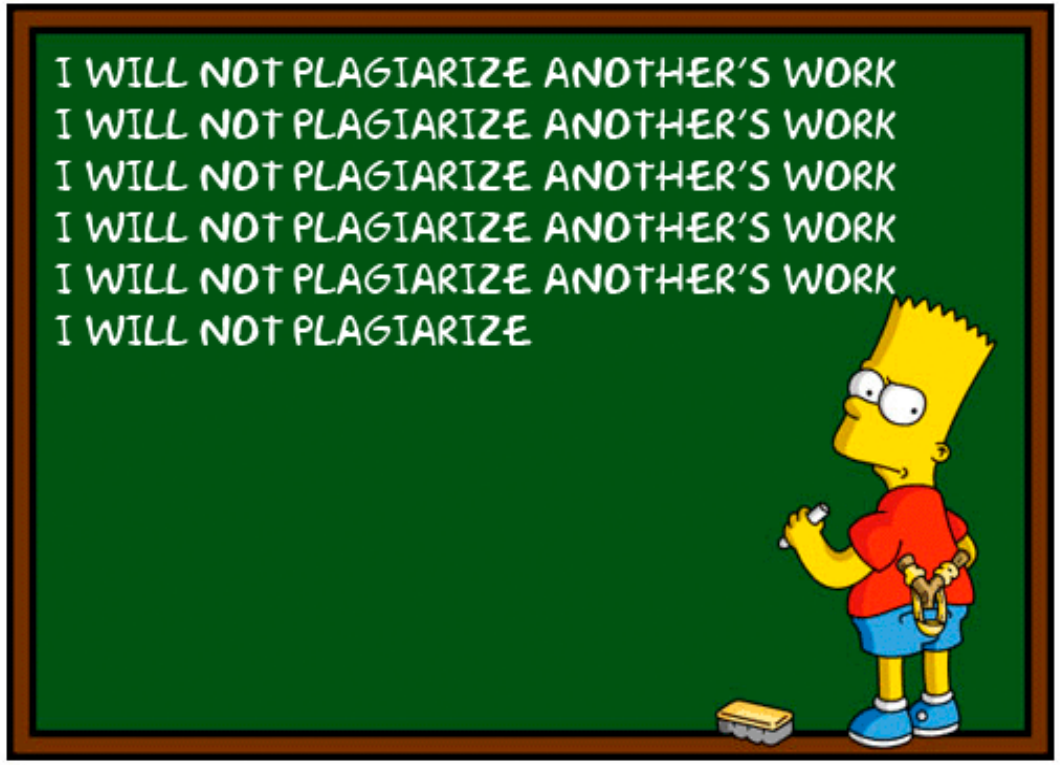
- **Failure to properly cite your sources is *plagiarism* and you will lose grades or fail.**
  - **all dissertations will be checked for plagiarism**

plagiarism

[**pley**-juh-riz-uhm] **noun**

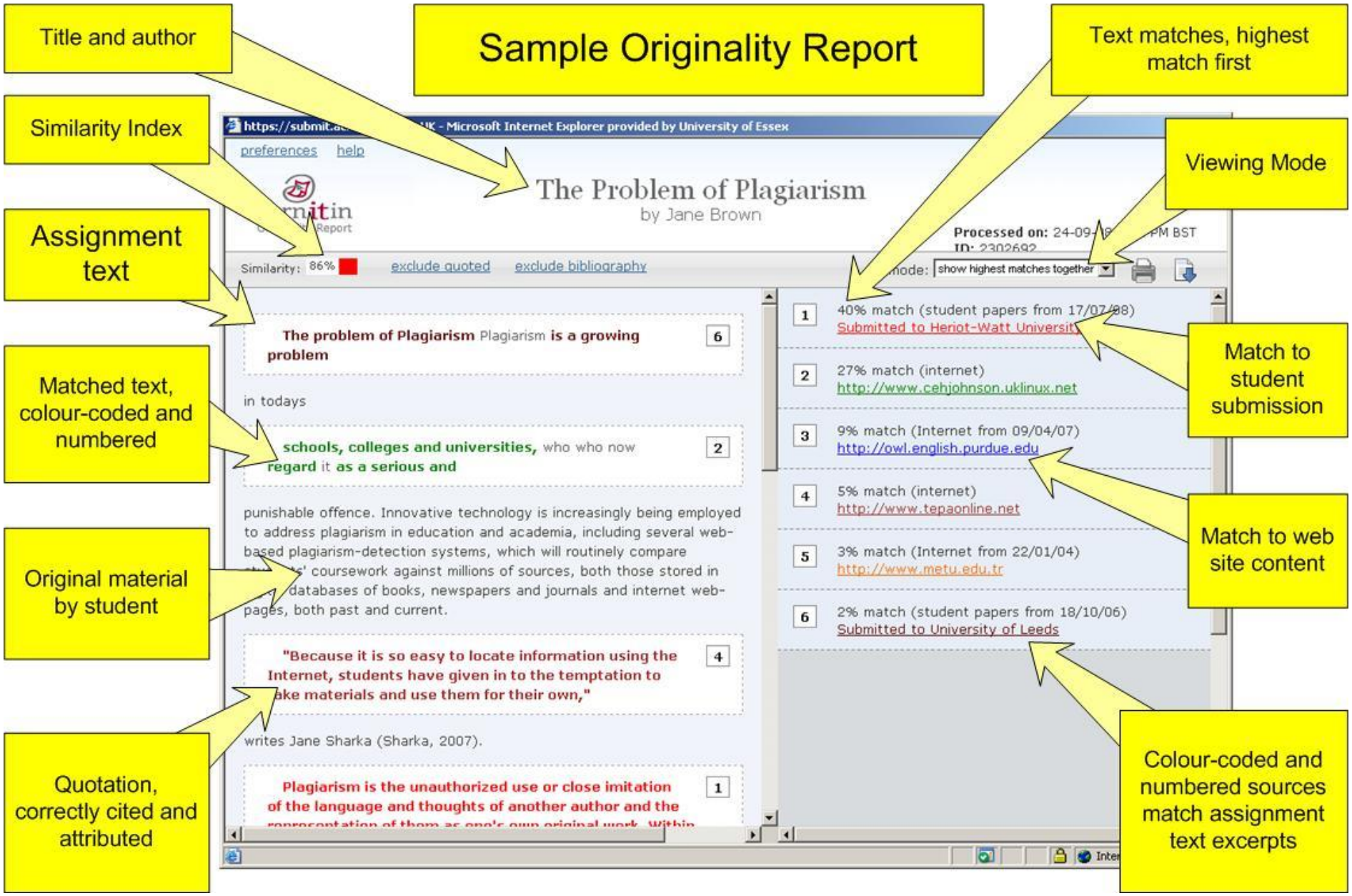
- the unauthorized use or close imitation of the language and thoughts of another author and the representation of them as one's own original work.

IMPORTANT NOTICE



INTERNATIONAL HELLENIC UNIVERSITY

Sample Originality Report

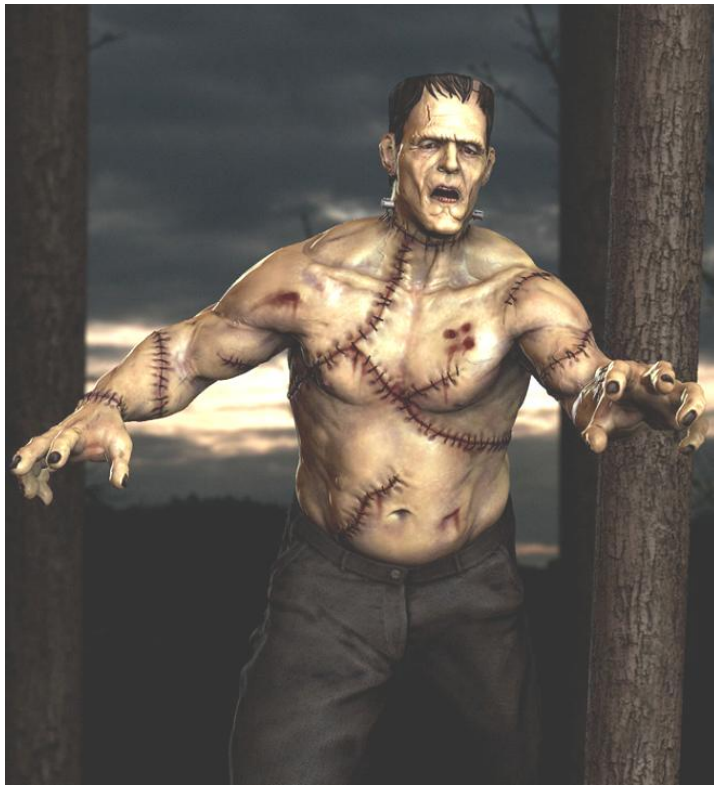


Plagiarism Detection

I'LL JUST COPY AND PASTE ALL THE PAPERS I'VE WRITTEN AND MAKE IT MY THESIS!
ctrl-c
ctrl-v
ctrl-c
ctrl-v
ctrl-c
ctrl-v
...AND I'M DONE!
NO, YOU'RE NOT.
ctrl-z?
JORGE CHAM © 2009
WWW.PHDCOMICS.COM

- **Do not copy/paste excerpts or entire sections from wikipedia or other sources**
  - Not even sentences!
  - This is not what a dissertation is all about
  - Even if you cite your source or you put the copied text in quotation marks (“ “), it is considered “**poor scholarship**”, it will result in a lower grade and you will be asked to revise it.
  - Your dissertation will be uploaded to the university’s online repository and it will be accessible by anyone!

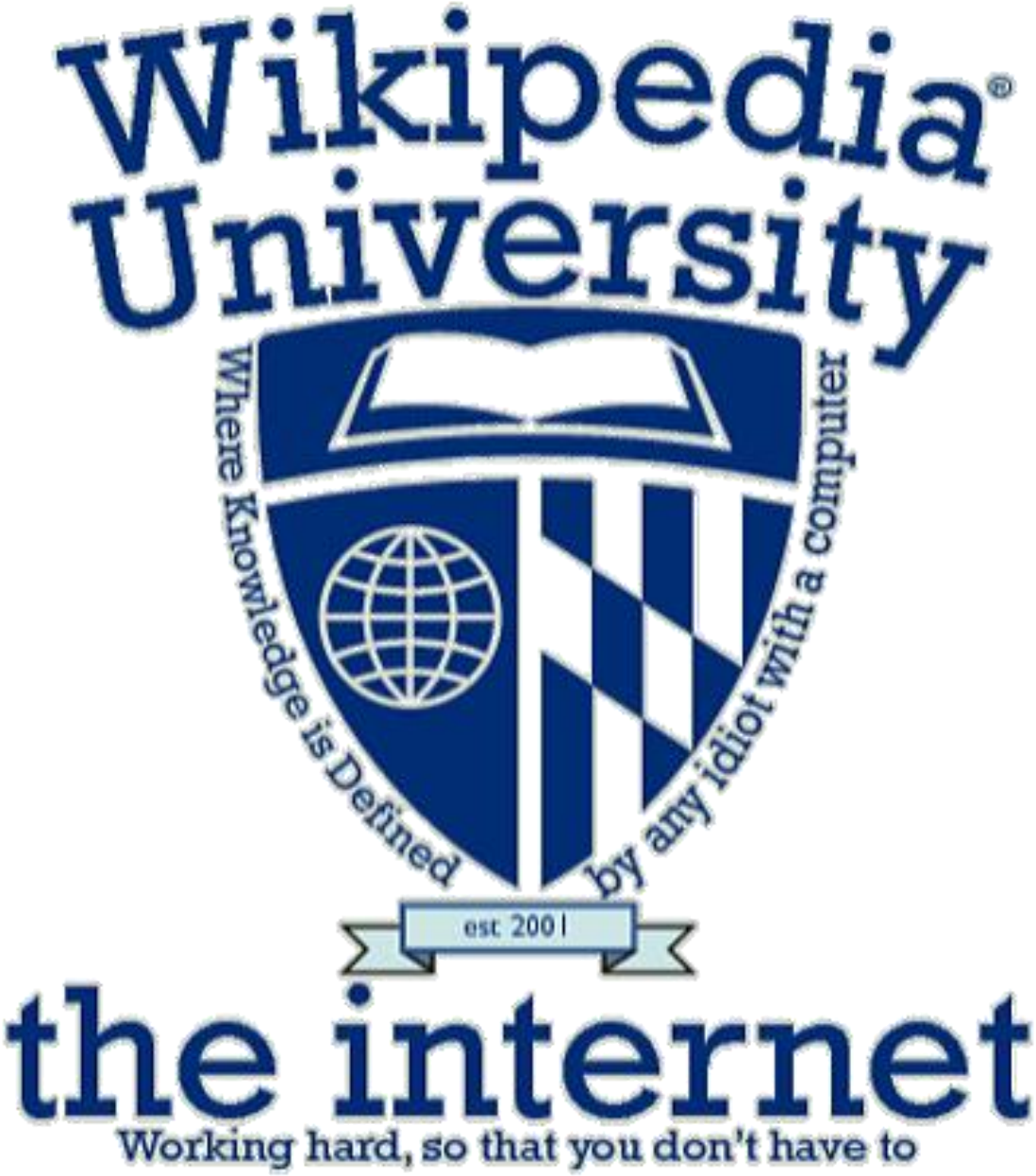
Poor Scholarship



INTERNATIONAL HELLENIC UNIVERSITY

- You should **summarise** your literature and web research findings **in your own wording**, according to **your understanding**.
  - Exceptions: Formal definitions, people quotes and known phrases, formulae (mathematical, chemical etc.)
- If you are still not sure what to do, ask an academic associate or your supervisor

Poor Scholarship



INTERNATIONAL HELLENIC UNIVERSITY

Poor Scholarship

INTERNATIONAL HELLENIC UNIVERSITY

- When you use Wikipedia or similar sources, **always cite the original source**, referenced at the bottom of each lemma, in the bibliography section
  - don’t refer to the Wikipedia lemma/URL!
- The same holds for any source.
  - Always cite the original source!

Wikipedia

Timeline of the Big Bang

Extrapolation of the expansion of the Universe backwards in time using general relativity yields an infinite density and temperature at a finite time in the past.

Wikipedia

References

~~[1] http://en.wikipedia.org/wiki/Big_Bang~~

[1] Hawking, S.W.; Ellis, G.F.R. (1973). The Large-Scale Structure of Space-Time. Cambridge University Press. ISBN 0-521-20016-4.

INTERNATIONAL HELLENIC UNIVERSITY

- If you complete your dissertation successfully you will
  - gain knowledge and skills
  - gain self-confidence
  - be able to use it to prove your skills to potential employers
  - publish a research paper
  - start a valuable relationship with your supervisor

Good Luck!

INTERNATIONAL HELLENIC UNIVERSITY

Good Luck!