

COMP08009 RESEARCH METHODS IN COMPUTING & IT

Dr Martin Kenirons

Martin.kenirons@gmit.ie

Room 344A

Department of Computer Science & Applied Physics

1

RECAP

```
\documentclass[12pt]{report}  
\usepackage[english]{babel}
```

```
\begin{document}  
\title{Title text}  
\author{Author names and addresses}  
\date{Date text}  
\maketitle
```

```
\newpage  
\tableofcontents  
\newpage
```

```
\chapter{Testing for chapter}  
\section{Introduction}  
introduction text goes here  
\subsection{Subsection on Introduction}  
my sub section text goes here  
\chapter{Testing for chapter 2}
```

```
\end{document}
```

Formula

Maths Equation

```
\usepackage{amsmath}
```

We can number our equations:

```
\begin{equation}  
\label{one} a^2+b^2=c^2, a^{13}, b_3  
\mbox{ or } b_{13}  
\end{equation}
```

We get $a^2 + b^2 = c^2$, a^{13} , b_3 or b_{13} (1)

Maths Equation

```
\begin{pmatrix}  
a_{11} & a_{12} \\  
a_{21} & a_{22}  
\end{pmatrix}  
\quad  
\boxed{\iiint_V f(x,y,z)\,  
\text{d}x  
\text{d}y  
\text{d}z}
```

$$\begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix} \quad \iiint_V f(x, y, z) \, dx \, dy \, dz$$

Maths Symbols

\hat{a} \acute{a} \bar{a} \dot{a} \breve{a} \check{a} \grave{a} \vec{a} \ddot{a} \tilde{a}

α β γ δ ϵ ζ η θ ϑ ι κ λ μ ν ξ \omicron π ϖ ρ ϱ σ ς

ς τ υ ϕ φ χ ψ ω Γ Δ Θ Λ Ξ Π Σ Υ Φ Ψ Ω

Maths Equations

<https://www.youtube.com/watch?v=DvDO1mea1w0>

Graphics

To include an external graphics file:

- Load the package graphicx in the preamble:

`\usepackage{graphicx}`

- Include the graphics using this command:

`\includegraphics[width=0.7\linewidth]{filename}`

Please notice: only EPS and PDF are scalable. Use JPG and PNG just for photographs!

Including JPG/PNG Images

LATEX (unlike PDFLATEX) cannot determine the bounding box automatically.

```
\includegraphics[width=8cm,bb=0 0 2304 1728] {holiday.jpg}
```

Bibliography

Bibliography

```
\begin{thebibliography}{1}
```

```
\bibitem{Dower} John W. Dower {\em Readings compiled for History  
21.479.} 1991.
```

```
\bibitem{Reader} The Japan Reader {\em Imperial Japan 1800-1945} 1973:  
Random House, N.Y.
```

```
\bibitem{norman} E. H. Norman {\em Japan's emergence as a modern  
state} 1940: International Secretariat, Institute of Pacific  
Relations.
```

```
\bibitem{fo} Bob Tadashi Wakabayashi {\em Anti-Foreignism and Western  
Learning in Early-Modern Japan} 1986: Harvard University Press.
```

```
\end{thebibliography}
```

Bibliography

In order to cite the references in the article, report etc:

As discovered by `\cite{norman}`.

Or as pointed out by John W. Dower in `\cite{Dower}`

This is the simplest method to cite references in Latex.

The output text will appear as:

“as discovered by [1]”

“in [2]”

BibLatex

Bibliography

```
@BOOK{<some abbreviation that you make up>,  
  AUTHOR = "author",  
  TITLE = "book title",  
  PUBLISHER = {publishing company},  
  ADDRESS = {where published},  
  YEAR = year published}
```

A real example of this would be:

```
@BOOK{star,  
  AUTHOR = "Star, R. M.",  
  TITLE = "Foo Bar Baz",  
  PUBLISHER = {MIT Press},  
  ADDRESS = {Cambridge, MA},  
  YEAR = 1989}
```

Bibliography

**@article{DBLP:journals/jcs/GentryHPS13,
author = {Craig Gentry and
Shai Halevi and
Chris Peikert and
Nigel P. Smart},
title = {Field switching in BGV-style homomorphic encryption},
journal = {Journal of Computer Security},
volume = {21},
number = {5},
pages = {663--684},
year = {2013},
url = {http://dx.doi.org/10.3233/JCS-130480},
doi = {10.3233/JCS-130480},
timestamp = {Mon, 06 Jan 2014 15:49:00 +0100},
biburl = {http://dblp.uni-trier.de/rec/bib/journals/jcs/GentryHPS13},
bibsource = {dblp computer science bibliography, http://dblp.org}}**

Bibliography

<http://dblp.uni-trier.de/pers/hd/g/Gentry:Craig>

@article{DBLP:journals/jcs/GentryHPS13,
author = {Craig Gentry and
Shai Halevi and
Chris Peikert and
Nigel P. Smart},
title = {Field switching in BGV-style homomorphic encryption},
journal = {Journal of Computer Security},
volume = {21},
number = {5},
pages = {663--684},
year = {2013},
url = {http://dx.doi.org/10.3233/JCS-130480},
doi = {10.3233/JCS-130480},
timestamp = {Mon, 06 Jan 2014 15:49:00 +0100},
biburl = {http://dblp.uni-trier.de/rec/bib/journals/jcs/GentryHPS13},
bibsource = {dblp computer science bibliography, http://dblp.org}

Example BibLaTeX

```
\documentclass{article}  
\usepackage[utf8]{inputenc}  
\usepackage[english]{babel}  
\usepackage{biblatex}
```

```
\addbibresource{sample.bib}
```

```
\begin{document}
```

Let's cite! The Einstein's journal paper `\cite{einstein}` and the Dirac's book `\cite{dirac}` are physics related items.

```
\printbibliography  
\end{document}
```

```
% Einstein's 1st paper about brownian motion
@article{einstein,  author =    "Albert Einstein",  title =    "{Zur
Elektrodynamik bewegter K{\"o}rper}. ({German})  [{On} the
electrodynamics of moving bodies]",  journal =    "Annalen der Physik",
volume =    "322",  number =    "10",  pages =    "891--921",  year =
"1905",  DOI =    "http://dx.doi.org/10.1002/andp.19053221004",
keywords =    "physics"}
```

```
% Adrien paper on xyz
@book{dirac,  title={The Principles of Quantum Mechanics},
author={Paul Adrien Maurice Dirac},  isbn={9780198520115},
series={International series of monographs on physics},  year={1981},
publisher={Clarendon Press},  keywords = {physics}}
```

Bibliography

`\cite{}`

<https://www.youtube.com/watch?v=5ifh3NF-k-k>

Separate Chapters into files

```
\chapter{Introduction}  
\input{chapters/introduction}
```

```
\chapter{Chapter Two Title}  
\input{chapters/chapter02}
```

```
\chapter{Chapter Three Title}  
\input{chapters/chapter03}
```

```
\chapter{Chapter Four Title}  
\input{chapters/chapter04}
```

```
\chapter{Conclusion}  
\input{chapters/conclusion}
```

CLASS PROJECT

Put together the a report templet for your 4th year project.

- Title page
 - Table of Contents
 - Abstract
 - Chapters/Sections/Subsections
 - Conclusion
 - Bibliography
 - Appendix
-
- This should include tables etc.....

CLASS PROJECT

IEEE Journal Format

QUESTIONS ?

COMPLETE LIST OF LATEX COMMANDS:

[HTTPS://WWW.NTG.NL/DOC/BIEMESDERFER/LTXCRIB.PDF](https://www.ntg.nl/doc/biemesderfer/ltxcrib.pdf)