Professional Skills in Computer Science
Lecture 1: Overview of COMP110

Ullrich Hustadt

Department of Computer Science
School of Electrical Engineering, Electronics, and Computer Science
University of Liverpool
Today . . .

1 Introduction
   Aims
   Learning outcomes
   Delivery
   Assessment

2 Learning and Teaching
   Time management
   Principles
   Three circles model
   Progression
   The biggest mistakes that students make
The aims of **COMP110 Professional Skills in Computer Science** are

- to help you see the bigger picture of computing
- to help you with your first steps to becoming a computing professional
- to improve your transferable/employability skills
Becoming a Computing Professional

- Becoming a computing professional requires more than acquiring technical knowledge and technical skills.

- It also requires you to:
  - understand our past
  - understand how we see the world
  - understand what we are interested in
  - understand what we want to achieve
  - behave in a certain way
  - do things in a certain way
  - think in a certain way
Aims

The aims of COMP110 Professional Skills in Computer Science are

To help you see the bigger picture of computing

1. To provide students with an economic, historic, organisational, research, and social perspective on computing

To help you with your first steps to becoming a computing professional

2. To provide students with the key skills required of a computing professional

3. To introduce students to concepts of professional ethics as well as social and legal aspects of computing

To improve your transferable/employability skills

4. To develop the communication and employability skills of students
Learning outcomes (1)

- Learning outcomes tell you what will be assessed (directly or indirectly)!
- COMP110 derives eight learning outcomes from its four aims

At the end of the module you are expected to be able

1. To be able to describe and discuss economic, historic, organisational, research, and social aspects of computing as a discipline and computing in practice;

(Derived from aim 1)
Learning outcomes (2)

At the end of the module you are expected to be able

1. To effectively use relevant software packages and appreciate different types of software

2. To effectively retrieve information including the use of library and web sources and the evaluation of information retrieved from such sources

3. To effectively use general IT facilities including organising your file store, taking advantage of access control and security features of operating systems

(Derived from aims 2 and 4)
Learning outcomes (3)

At the end of the module you are expected to be able

5. To have an awareness of the roles of computing professionals

6. To be able to appraise professional, ethical, legal and social issues related to the work of a professional within the IT industry with particular regard to the BCS Codes of Conduct and Practice

7. To manage your own learning and
to have an awareness of the importance of lifelong learning

(Derived from aim 3)
Learning outcomes (4)

At the end of the module you are expected to be able

8 To recognise and employ sound reasoning and argumentation techniques as part of conducting basic research
9 To effectively communicate in writing and orally

(Derived from aims 2 and 4)
Effective communication: Argumentation

In a job, you will often have to make arguments:

- Which market segment do we want to develop a system for?
- Which features should our system have?
- What resources should we invest into realising feature X?
- Will it be ethical and legal to develop and market the system?
- Why did the development of the system fail?
- Why should you hire me?

We want you to understand how to make arguments effectively, which involves

- logical reasoning
- argumentation
- rhetoric
Effective communication: Writing and presenting

- Being able to construct arguments is of little value unless you can communicate arguments effectively

- We will therefore study **how to write:**
  - structure, content, style, technicalities, ...
  - with particular emphasis on **technical writing**

and **how to present:**

- what makes a good presentation
- structure, content, style, ...
- basic presentation skills

- **Effective communication skills requires practice**
  - you will need those skills again and again in your degree, and afterwards
Other employability skills

- Effective communication skills is only one among many employability skills
  - Leadership skills
  - Assertiveness
  - Time management skills
  - ‘Can-do’ approach
  - Creative thinking
  - Problem solving skills
  - General mathematical awareness
  - Negotiation skills
  - Business awareness

- You will be asked to assess yourself regarding these skills and to develop an action plan for improving these skills
What do graduates do?

- All this is based on the assumption that you will become **Computing Professionals**

- Is it true that if you study a particular subject then you will work in a job related to that area?

- Take Biology and Geography as examples

  What kind of jobs do Biology and Geography graduates most commonly do?
## What do graduates do?

### UK Biology Graduates 2014 – Top 5 types of work

<table>
<thead>
<tr>
<th>Occupation</th>
<th>%</th>
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<tbody>
<tr>
<td>Retail, catering, waiting and bar staff</td>
<td>20.2%</td>
</tr>
<tr>
<td>Other professionals, associate professionals and technicians</td>
<td>16.3%</td>
</tr>
<tr>
<td>Other occupations</td>
<td>10.5%</td>
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<tr>
<td>Clerical, secretarial and numerical clerk occupations</td>
<td>9.1%</td>
</tr>
<tr>
<td>Business, HR and finance professionals</td>
<td>8.5%</td>
</tr>
<tr>
<td>Science professionals</td>
<td>7.3%</td>
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</tbody>
</table>

http://www.hecsu.ac.uk/assets/assets/documents/wdgd_2015.pdf

October 2015 (accessed 18 September 2016).
What do graduates do?

UK Geography Graduates 2014 – Top 5 types of work

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business, HR and finance professionals</td>
<td>20.2%</td>
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<tr>
<td>Marketing, PR and sales professionals</td>
<td>14.1%</td>
</tr>
<tr>
<td>Retail, catering, waiting and bar staff</td>
<td>13.9%</td>
</tr>
<tr>
<td>Clerical, secretarial and numerical clerk occupations</td>
<td>10.5%</td>
</tr>
<tr>
<td>Other occupations</td>
<td>7.4%</td>
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<tr>
<td>Science professionals</td>
<td>0.9%</td>
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What do graduates do?

<table>
<thead>
<tr>
<th>UK Computer Science and IT 2014 – Top 5 types of work</th>
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<tbody>
<tr>
<td>Information technology professionals</td>
<td>58.8%</td>
</tr>
<tr>
<td>Retail, catering, waiting and bar staff</td>
<td>10.2%</td>
</tr>
<tr>
<td>Business, HR and finance professionals</td>
<td>6.0%</td>
</tr>
<tr>
<td>Other occupations</td>
<td>5.9%</td>
</tr>
<tr>
<td>Clerical, secretarial and numerical clerk occupations</td>
<td>3.8%</td>
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What do graduates do?

What percentage of Liverpool computer science graduates in work six month after graduation will be ICT professionals or in IT service delivery occupations?

Liverpool

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<tbody>
<tr>
<td>ICT professionals</td>
<td>≈75%</td>
<td>63%</td>
<td>46%</td>
<td>50%</td>
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<tr>
<td>IT service delivery</td>
<td>5%</td>
<td>4%</td>
<td>6%</td>
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<tr>
<td></td>
<td>≈75%</td>
<td>68%</td>
<td>50%</td>
<td>56%</td>
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</table>

Conclusion:
The majority of you will become ICT professionals and this is what your studies should prepare you for
What do graduates do?

Rank the following four subjects in order of decreasing percentage of self-employed graduates:

Business studies    Computer science    Design studies    Music

UK

<table>
<thead>
<tr>
<th>Graduating class</th>
<th>2010</th>
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<th>2008</th>
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<tbody>
<tr>
<td>Design studies</td>
<td>13.9%</td>
<td>14.3%</td>
<td>14.3%</td>
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<tr>
<td>Music</td>
<td>8.4%</td>
<td>7.3%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Computer science</td>
<td>3.1%</td>
<td>3.5%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Business studies</td>
<td>3.0%</td>
<td>3.3%</td>
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Diversity of IT jobs
Delivery of the module

1. COMP110 covers both semesters!

2. Lectures
   - 3 lectures per week for 9 weeks

3. Practicals
   - 1 practical per week for 9 weeks
   - See your personal timetable for the time and location of your practical
   - **Practicals start this week (week 1)!**
     You must have attended a practical by the end of this week

4. Tutorials
   - 1 tutorial per week for 8 weeks
   - See your personal timetable for the time and location of your tutorial
   - **Tutorials start next week (week 2)!**

5. Office hours / Drop-in sessions
   Tuesday, 10:00–11:00 Ashton Building, Room 1.03
Delivery of the module (2)

6 Website

http://intranet.csc.liv.ac.uk/~ullrich/COMP110/

7 Announcements will be send by e-mail
   • You should check you university e-mail account at least every other day
   • Always use your university e-mail account if you want to contact me or any other member of staff
Recommended Texts

- F. Bott:  
  Professional Issues in Information Technology.  

- W. Hughes, J. Lavery, and K. Doran:  
  Critical Thinking: An Introduction to the Basic Skills (6th revised edition).  

- J. M. Kizza:  
  Ethical and Social Issues in the Information Age.  

- J. Zobel:  
  Writing for Computer Science.  

http://library.liv.ac.uk/search/v?SEARCH=COMP110
Assessment (1)

- COMP110 is assessed by coursework (no exam; 100% continuously assessed)

- **Four assessment tasks** need to be completed throughout the two semesters of the academic year
  Work must be submitted by a set **deadline**

- Your work will be assessed against a set of **marking criteria** and awarded a mark between 0 and 100

- Marked and commented work will be returned to you about three weeks after the deadline
Assessment (2)

- To pass COMP110 you have to make a **reasonable attempt** on each and every of the COMP110 assessment tasks and obtain an overall mark of at least 40 (calculated as the sum of the marks awarded for each of COMP110 assessment tasks multiplied by the task weight).

- If you fail to submit work for one of the COMP110 assessment tasks or submit work which does NOT constitute a reasonable attempt a **failing COMP110** mark will be recorded at the end of the year.

- If you fail COMP110 you may be given a **re-sit opportunity** over the summer.

You must submit work for every assignment, even if you think it is not good enough.
Academic integrity

- The work you submit must be your own
- Where you have used the ideas of others this must be clearly indicated
- Where you have used data or text produced by others this must be clearly indicated

Deviations from these expectations are dealt with depending on the seriousness and persistence of the deviation:

- Warning
- Mark penalty of up to 10 marks for an assessment
- Mark for an assessment capped at 40
- Mark of 0 awarded for an assessment
- Mark of 0 awarded for a whole module
- Suspension or Termination of studies
Studying is a full-time job!

- A typical module is worth 15 credits and is assessed 80% by exam and 20% by continuous assessment tasks.

- 15 credits are equivalent to 150 hours of learning.

- On a typical module students are expected to spend:
  - 30–36 hours in lectures
  - 10 hours in tutorials or practicals
  - 30–40 hours on continuous assessment tasks
  - 30 hours on exam revision
  - 34–50 hours on background research, reading, etc over the 15 weeks of the semester (10 hours per week)

- Since you take modules worth 60 credits per semester, you should spend 40 hours per week on your studies.
Assignment clusters

• As you do 4-5 modules in parallel, assessment tasks can come in quick succession:
  
  Wednesday, 4th November 2015    COMP101 assignment
  Thursday, 12th November 2015    COMP110 assignment
  Friday, 13th November 2015      COMP103 assignment
  Wednesday, 18th November 2015   COMP101 assignment
  Friday, 20th November 2015      COMP102 assignment
  Monday, 23rd November 2013      COMP109 class test
  Wednesday, 25th November 2013  COMP110 assignment

• Each assignment requires 10-20 hours of work and you have several weeks to fit those hours in

→ You do need a PLAN
Time management for beginners

1 Initiate
   a Identify all the tasks you have to perform
   b Divide the tasks into sub-tasks / milestones
   c Keep track of all the uncommitted time you have

2 Plan
   a Allocate (more than) enough time to each task
   b Set deadlines for each sub-task / milestone

3 Execute

4 Monitor and control
   a Monitor progress
   b Take corrective measures if deadlines for sub-tasks are missed
# Time management: Example

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<thead>
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<td><strong>MONDAY</strong></td>
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## November 2016

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Ullrich Hustadt

COMP110 Professional Skills in Computer Science
Time management: Resources

- University’s online academic skills development resources:
  
  https://www.liv.ac.uk/ilearn/main.asp

  Section on time management:
  
  https://www.liv.ac.uk/ilearn/resources/Time-management_Tips/player.asp
Principles

• University is not School!

• You do not learn for an exam you learn for life

• We want you to learn independently

• We want you to set your own goals and work to achieve them

• We want you to think and work for yourself

• We are here to help, but the key person is you
How you should spend your time

- **Curricular**: everything you do in connection with your academic subject learning, research, projects, group work, presentations, placements

- **Co-curricular**: activities related to the your studies and the university that do not count towards your degree mentoring, membership of committees or clubs

- **Extra-curricular**: everything else you do as a student from which you can gain employability skills jobs, internships, volunteering

To be employable you need achievements in all three circles
Passing your first year of study: The Rules

To pass your first year of study you must

1. obtain a weighted average mark of at least 40

\[ \frac{\sum (Mark_{Module} \times Credits_{Module})}{\sum Credits_{Module}} \geq 40 \]

2. not have any module marks below 35

3. have at most 30 credits worth of modules with marks between 35 and 39

4. pass all mandatory modules, that is, obtain a mark of at least 40 on these modules

~ COMPl10 is mandatory

5. submit work for all assignments on COMPl01 and COMPl10 (otherwise you will be given a mark below 35 on these modules)
The biggest mistakes that student make

1. Not doing the assignments

   “I can pass the module on the exam alone, so I do not need to do the assignments”
   “These assignments take so much time to do but are worth so few marks, they are not worth my time”

   ↷ assignments develop your practical skills, exams don’t
   ↷ assignments pay off on your projects, projects are worth a lot

2. Not taking part in class tests

   (Same arguments as for class tests)

   ↷ class tests encourage you to keep up with the material
   ↷ class tests provide you with feedback on how well you understood the material, before the exam
The biggest mistakes that students make

3 Procrastinating
   “If I start to work on an assignment a day before the deadline, that should leave me enough time to finish it”

Rule of thumb: Most assignments require at least two full days of work and you will have more than one assignment to work on simultaneously.

4 Judging yourself too harshly
   “I didn’t finish the work for the assignment, so it’s better if I don’t submit it”

That only guarantees failure and you will not receive feedback.

Always submit whatever work you have.

“J didn’t prepare well enough for the exam, so I better don’t go”

Same mistake as above.
The biggest mistakes that students make

5 Cutting lectures, practicals, tutorials
   “The lectures are boring, there is no point in attending them”
   “I did not understand the lectures, so there is no point in going to the tutorials”
   “The practicals aren’t assessed, so I don’t need to go”

Contact time has a positive impact on your performance (in Science, Engineering, Medicine)
   ↗ attendance is important

6 Being distracted (by clubs, pubs, social media/networks)
   “I didn’t do well at university, but I had a really good time”

   ↗ not a recipe for success in life
   ↗ going on holiday for three years would be cheaper
The biggest mistakes that students make

7 Not keeping up with the lecture material / Going it alone
   “I didn’t understand a word the lecturer was saying but I’m sure everything will become clear to me by the time of the exam”

If you do not understand a lecture then it is likely that you will not understand the next one either
Keeping up with understanding the material is important
   \[\rightarrow\] talk to your fellow students and the lecturer

8 Forgetting what has been learned after a module is over
   “Module X is over, I’ve passed the exam; now I can surely throw away my notes for X and forget what I have learned.”

Modules are interdependent and all modules lead up to your honours year project
   \[\rightarrow\] keep your own electronic copies of all module notes
keep all additional notes that you have taken
The biggest mistakes that students make

- Making assumptions about how university works
  “I’ve skipped the exams because I wasn’t prepared and I thought it’s better to wait until next year and try again”
  “I didn’t submit a claim of mitigating circumstances because I had done so once before and thought one couldn’t submit more than one claim”
  “I thought marks for re-sit assignments are capped at 40 and lateness penalties cannot reduce marks below 40, so I submitted all my re-sit assignments late”

Incorrect assumptions about university regulations can have severe consequences

~ talk to your academic advisor about the rules