IFB398 Capstone (Phase 1)
Lecture 1 - Introduction

Faculty of Science and Engineering

Semester 2, 2018

Acknowledgement *of* Traditional Owners

In keeping with the spirit of Reconciliation, I acknowledge the Turrbal, Jagera/Yuggera, Kabi Kabi and Jinibara Peoples as the Traditional Owners of the lands where QUT now stands – and recognise that these have always been places of teaching and learning.

I wish to pay respect to their Elders – past, present and emerging – and acknowledge the important role Aboriginal and Torres Strait Islander people continue to play within the QUT community.

www.reconciliation.qut.edu.au

Aims of the Lecture

- To understand what Capstone is about, why we do it and how it fits into the degree.
- To get some understanding of how Capstone will operate and be assessed
- To get started on forming a team and undertaking a project
- To avoid some very common pitfalls.

An Agenda

- What's it all about?
- Getting Started
- Teams
- Projects
- Project Allocation
- The Timeline
- Assessment
- About Us

What is Capstone? Why do we do it? And what can I expect?

WHAT'S IT ALL ABOUT?

From the AIMS

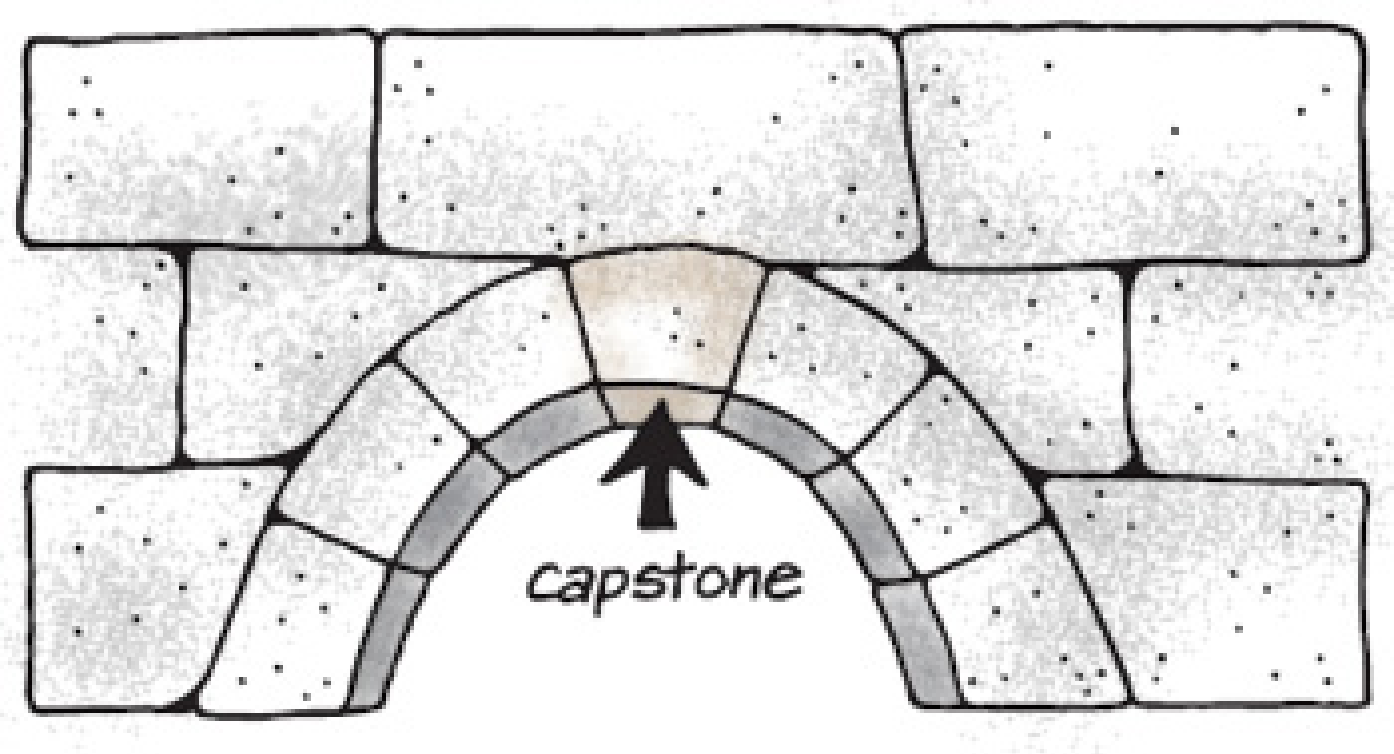
The key focus of the capstone project is for you to demonstrate your ability, as an emerging IT professional, to execute a substantial industry-oriented project.

You will pull together what you have learnt throughout your degree and show how you have integrated the skills and knowledge from previous units.

Capstone

- Widely used in accredited degree programmes
- A transition from study to professional practice
- Idea is to ‘complete the structure’
  - Capstone builds on everything that has come before
  - But it also adds strength - integrate your earlier knowledge, use it in practice, and you will understand it better than you ever did before
- The arch is often used to symbolise this.

What is Capstone?



Source: Syracuse University honours programme. www.syr.edu/

Learning Outcomes (CUO)

1. Model, negotiate and prioritise project requirements for the stakeholder community and develop a plan that effectively uses available knowledge, skills and abilities.

2. Design and prototype an implementable solution that addresses the requirements.

3. Independently manage time and resources in a professional and ethical manner, in the face of changing needs and environment, to achieve project goals to the satisfaction of stakeholders.

4. Employ professional communication to persuade an audience that a project plan will achieve the stakeholder's objectives.

5. Work effectively as a member of a team.

Learning Outcomes (annotated)

- **Model, negotiate and prioritise[1] project requirements for the stakeholder community[2] and develop a plan[3] that effectively uses available[4] knowledge, skills and abilities.**

1. Use your specialist skills to make professional choices about how to plan and implement a project.
2. Being a professional here means trying to achieve the goals of your clients while advising on the best way of achieving them.
3. A plan is the first tool you develop, before even starting ‘development’. Plans can change, but no plan is not an option
4. Emphasis on “available knowledge, skills and abilities”: the plan reflects your assessment of what YOU can achieve

Learning Outcomes (annotated)

- **Design and prototype[1] an implementable solution[2] that addresses the requirements[3].**

1. You are technically competent: You have the skills to identify a solution and by the end of this unit, you should at least be able to present it as a prototype of some kind.
2. Note that sometimes defining the problem will be part of your job, as the client will mostly talk about their *goals*
3. But you are also capable of understanding the domain well enough that you can deliver what they want, or explain why what they want if not necessarily what they need.

Learning Outcomes (annotated)

- **Independently manage time and resources in a professional and ethical manner[1], in the face of changing needs and environment[2], to achieve project goals to the satisfaction of stakeholders[3].**

1. You can plan and you can adapt. You can make judgments without close supervision. You can follow and use a process to help you stay on track.
2. Note that it is not going to be easy, and it is not meant to be. You won't necessarily be very good at this yet. You will estimate and you will promise and you will try and you will get it horribly wrong. This is hard and takes practice. You will talk about it honestly with the tutors and the stakeholders and you won't lie and say you can catch up next week
3. Read Steve McConnell and classic mistakes: http://www.construx.com/10x_Software_Development/Classic_Mistakes_Updated/

Learning Outcomes (annotated)

- **Employ professional communication[1] to persuade an audience that a project plan will achieve[2] the stakeholder's objectives[3].**

1. You can present so that we believe you can deliver.
2. And we believe you because you present as a team, and everyone is on board
3. You present us with a package:
   - You understand the problem domain
   - You have worked out exactly what the client wants
   - You have a mix of people who can handle the technical challenges
   - You can plan and track and you have demonstrated that so far.
   - You market yourselves, but the hype is limited.

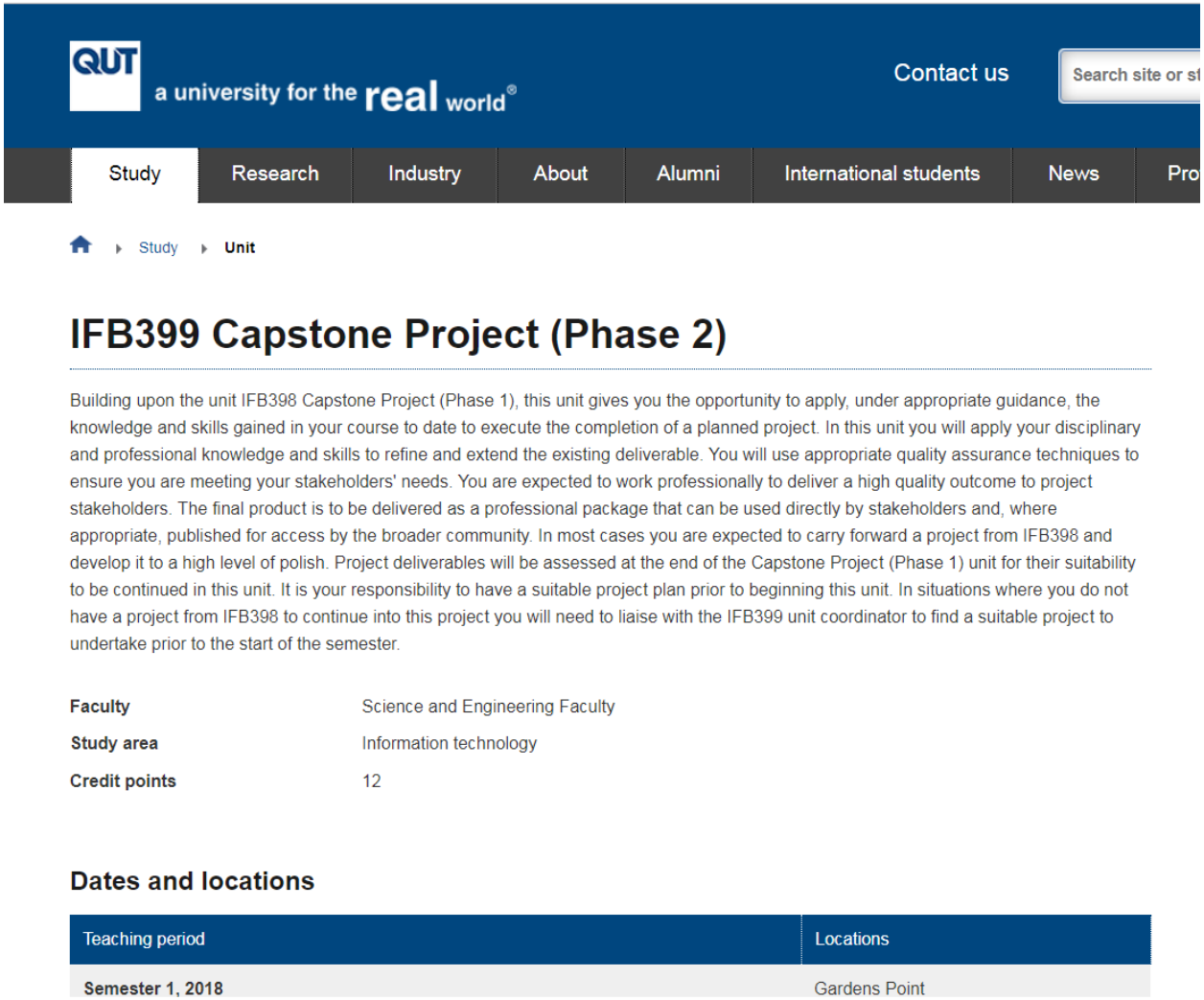
Learning Outcomes (annotated)

- ***Work[1] effectively[2] as a member of a team[3].***

1. Yes, we know you have done this before, but this is different.
2. Here we expect you to work effectively as part of a team when the people in it may see the world very differently from you.
3. In real teams you will work with people with widely varying skills from yours. They are usually there because they bring something to the table, as do you.

So this is one of the most important aspects of the unit – we want you to collide with other skill sets. That is why we have insisted on a mix of majors, and encouraged a diverse team.

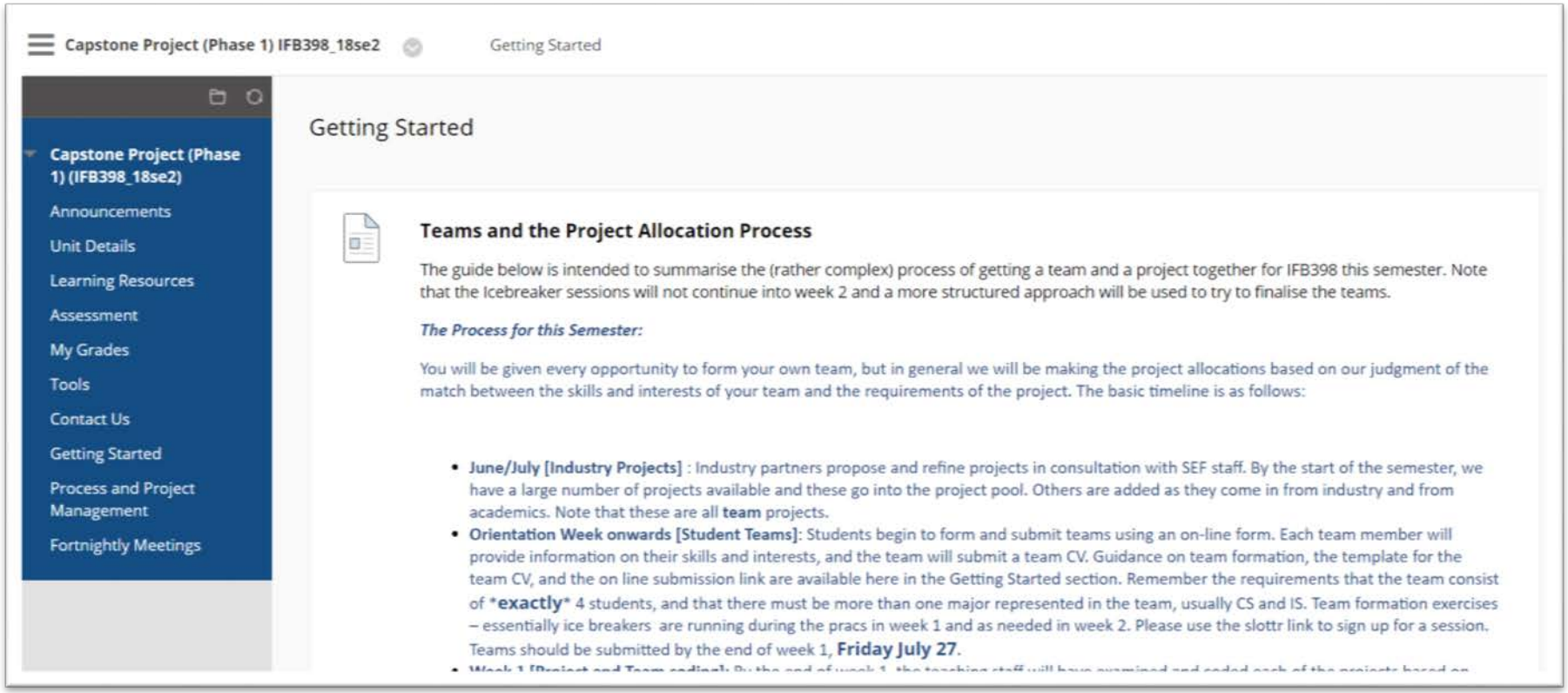
And then...


QUT
a university for the real world®
Contact us
Search site or st
Study
Research
Industry
About
Alumni
International students
News
Pro
Study
Unit
IFB399 Capstone Project (Phase 2)
Building upon the unit IFB398 Capstone Project (Phase 1), this unit gives you the opportunity to apply, under appropriate guidance, the knowledge and skills gained in your course to date to execute the completion of a planned project. In this unit you will apply your disciplinary and professional knowledge and skills to refine and extend the existing deliverable. You will use appropriate quality assurance techniques to ensure you are meeting your stakeholders' needs. You are expected to work professionally to deliver a high quality outcome to project stakeholders. The final product is to be delivered as a professional package that can be used directly by stakeholders and, where appropriate, published for access by the broader community. In most cases you are expected to carry forward a project from IFB398 and develop it to a high level of polish. Project deliverables will be assessed at the end of the Capstone Project (Phase 1) unit for their suitability to be continued in this unit. It is your responsibility to have a suitable project plan prior to beginning this unit. In situations where you do not have a project from IFB398 to continue into this project you will need to liaise with the IFB399 unit coordinator to find a suitable project to undertake prior to the start of the semester.
Faculty
Science and Engineering Faculty
Study area
Information technology
Credit points
12
Dates and locations
Teaching period
Locations
Semester 1, 2018
Gardens Point

Let’s start at the very beginning, a very…

GETTING STARTED

Start Here…


Capstone Project (Phase 1) IFB398_18se2
Getting Started
Capstone Project (Phase 1) (IFB398_18se2)
Announcements
Unit Details
Learning Resources
Assessment
My Grades
Tools
Contact Us
Getting Started
Process and Project Management
Fortnightly Meetings
Getting Started
Teams and the Project Allocation Process
The guide below is intended to summarise the (rather complex) process of getting a team and a project together for IFB398 this semester. Note that the Icebreaker sessions will not continue into week 2 and a more structured approach will be used to try to finalise the teams.
The Process for this Semester:
You will be given every opportunity to form your own team, but in general we will be making the project allocations based on our judgment of the match between the skills and interests of your team and the requirements of the project. The basic timeline is as follows:
June/July [Industry Projects] : Industry partners propose and refine projects in consultation with SEF staff. By the start of the semester, we have a large number of projects available and these go into the project pool. Others are added as they come in from industry and from academics. Note that these are all team projects.
Orientation Week onwards [Student Teams]: Students begin to form and submit teams using an on-line form. Each team member will provide information on their skills and interests, and the team will submit a team CV. Guidance on team formation, the template for the team CV, and the on line submission link are available here in the Getting Started section. Remember the requirements that the team consist of *exactly* 4 students, and that there must be more than one major represented in the team, usually CS and IS. Team formation exercises – essentially ice breakers are running during the pracs in week 1 and as needed in week 2. Please use the slottr link to sign up for a session. Teams should be submitted by the end of week 1, Friday July 27.

Getting Started

- A link to the Facebook group
  - Request to join and we will approve you

(yes… now)

Getting Started

- The Icebreaker folder
  - The guide and a link to the Doodle signup form
- A link to the team registration form
  - A guide to using the form, Team CV templates
- An overall description of the process for team formation and project allocation

Remember, you have to work with these people…

PROJECT TEAMS

Team Formation

- We want you to form teams
- There are some absolute rules and there are some guiding principles.
- The principles first:
  - We want a diverse set of skills – both CS and IS
  - We want people to get a chance to use their minor or other experience
  - We want people to feel comfortable in the team, so everyone has be sensitive to the people around them.
  - Let's talk also about balance and isolation

The Rules

- ***We*** have the final say on teams.
  - We will in general just work with your team
  - In a small number of cases, we may need to rejig teams in order to match them to specific projects or because of some other student related issue.
  - If this is the case we will talk to you in person.
  - Will be very rare.
- There must be four (4) people in a team.
- There are no individual projects.
- There must be a mix of majors and skills

Forming a Team

- Be a little cautious and be a little ruthless
- This is about getting things done
- Work with people you trust to do a good job
- Meet people via the Facebook group or the Icebreaker sessions
- Check their skill set, check their goals and work ethic, and yes, perhaps even check their GPA.
- Look at the package - do they fit your team?
- If you aren't comfortable, keep looking.

The Process

- Work out what you are good at, and think about the sorts of roles you might take on in a team
- Form a team or come to the icebreaker sessions or use the Facebook group to help you find other team members
- Create a team CV and register your team using the team form

Tell us quickly why we should hire you

THE TEAM CV

QUT IFB398 Capstone Phase 1 (2018)

Team Name

Alessandro Soro
Decide on a name for your team, this could be a motto, a combination of your names, or a word of fantasy, remember that shorter names are more memorable.

Team member #	Student Name	Main role in the team
#1	Lucy Doggie	Developer
#2		
#3		
#4		

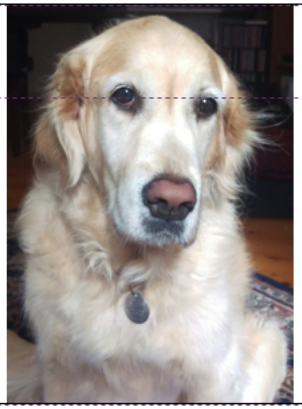
Alessandro Soro
Same order as in the online form, please.

Team Summary (max 200 words)

Our Team includes 2 Information Systems students and 2 Computer Science students for a well-rounded skill set. Although we have never worked together before, we discussed extensively the potential roles and contributions of each team member, and finally decided that each one in the team is bringing an important and valuable contribution: student #1 (Lucy Doggie) is proficient at mobile development, and very knowledgeable of C/C++ and Java programming Languages; student #2 …

We aim at undertaking a project that allows each one of us to bring to the table our best skills.

Alessandro Soro
Give a brief presentation of your team: have you worked together before? What brought you to form a group? How did you decide on the combination of skills?

#1	Lucy Doggie	
Email:	l.doggie@connect.qut.edu.au	
Phone:	0201 XXX XXX	
Skills:	• Android/iOS mobile development • Proficient in C/C++/Java • System Programming • Canine-Computer Interaction	
Web presence (optional): github, blog, personal webpage		
Degree: Information Technology	Major: Computer Science	Minor: Mobile Applications

Other interests:

- Play sax in a Jazz band on Saturdays
- Self-taught photographer with a preference for documentary style
- Regular patron of the Central Library Makerspace in Hamilton
- Management of socks and soft toys

Goals:

The capstone project is a great opportunity to engage in a real-life problem and practice what I have learnt so far, as well as to show that I can navigate the difficulties of day to day work in a professional manner.

If given the opportunity, I will show that I can work in a team with a problem-solving attitude, giving my contribution to the overall project goals, and willingness to work for pats and hard biscuit treats.

My key strengths, as I have detailed above, are Mobile (Android/iOS) programming in C/C++ and Java, as well as System Programming, mainly for the Linux system.

However, I have a special interest in embedded systems and microcontrollers, and I would welcome the possibility of exploring these technologies in the project.

Alessandro Soro
Add one page per student, in the same order as listed in the cover page.

Alessandro Soro
Limit this section to 3 or 4 core skills: what do you excel at?

Alessandro Soro
This section is optional but warmly recommended: give examples of previous projects or other activities where you have demonstrated (some of) the skills that you say you bring to the team.

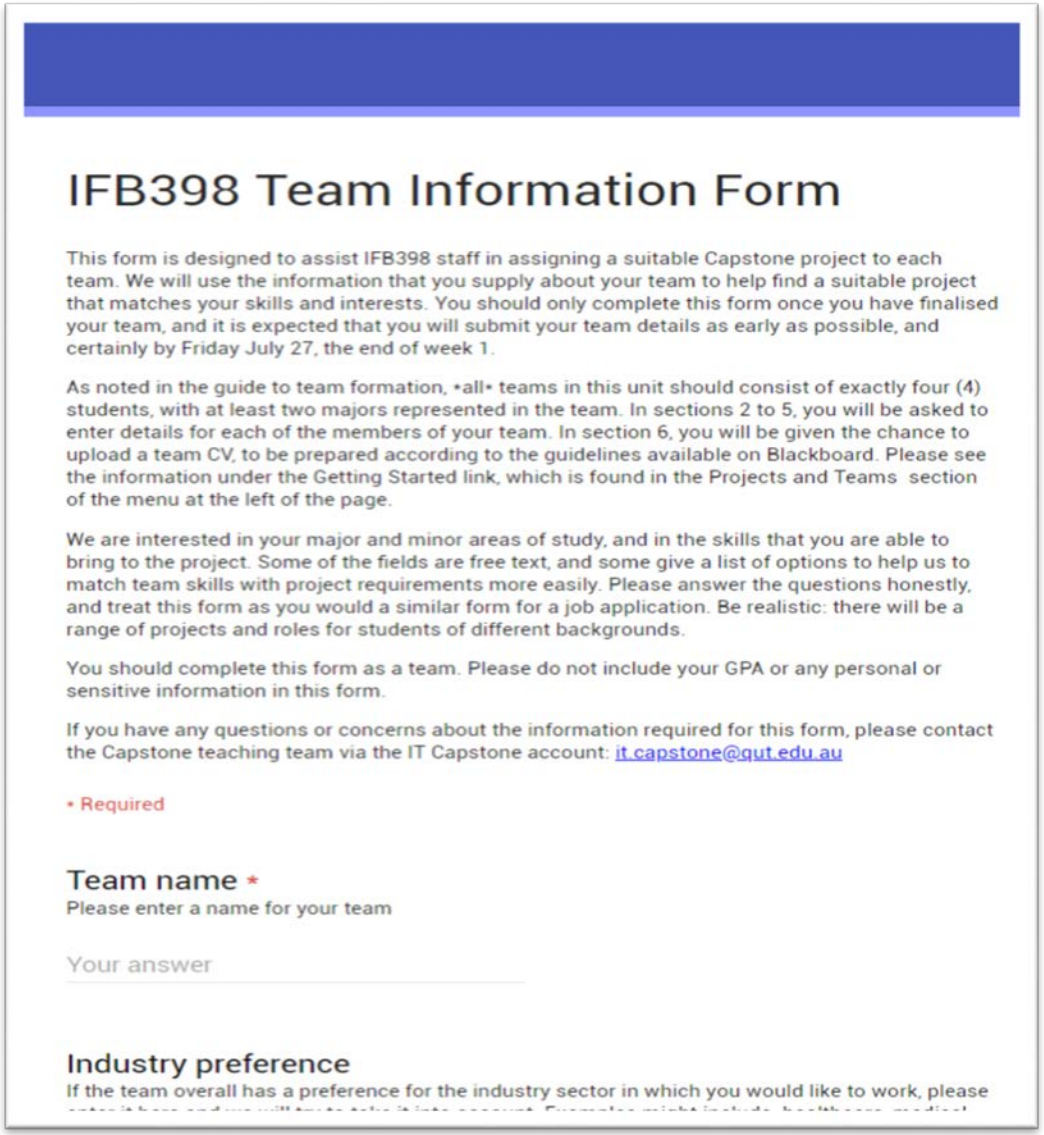
Alessandro Soro
While not directly related to your Degree, these will the project partners to get an idea of where your passions are, and if you will be equally passionate about the project

Alessandro Soro
Write something about yourself and your expectations for the Capstone project. Use this space wisely and DO NOT EXCEED the space of one page per student.

Alessandro Soro
Don't forget to remove all comments before submitting the document! Also, remember to save the file using the last name of each member of your group as entered earlier, separated by underscores.

Tell us everything so we can match you with a project

THE TEAM FORM



IFB398 Team Information Form

This form is designed to assist IFB398 staff in assigning a suitable Capstone project to each team. We will use the information that you supply about your team to help find a suitable project that matches your skills and interests. You should only complete this form once you have finalised your team, and it is expected that you will submit your team details as early as possible, and certainly by Friday July 27, the end of week 1.

As noted in the guide to team formation, *all* teams in this unit should consist of exactly four (4) students, with at least two majors represented in the team. In sections 2 to 5, you will be asked to enter details for each of the members of your team. In section 6, you will be given the chance to upload a team CV, to be prepared according to the guidelines available on Blackboard. Please see the information under the Getting Started link, which is found in the Projects and Teams section of the menu at the left of the page.

We are interested in your major and minor areas of study, and in the skills that you are able to bring to the project. Some of the fields are free text, and some give a list of options to help us to match team skills with project requirements more easily. Please answer the questions honestly, and treat this form as you would a similar form for a job application. Be realistic: there will be a range of projects and roles for students of different backgrounds.

You should complete this form as a team. Please do not include your GPA or any personal or sensitive information in this form.

If you have any questions or concerns about the information required for this form, please contact the Capstone teaching team via the IT Capstone account: it.capstone@qut.edu.au

* Required

Team name *

Please enter a name for your team

Your answer

Industry preference

If the team overall has a preference for the industry sector in which you would like to work, please

1 - Skills - General Software Development

- [ ] Object Oriented Programming
- [ ] Functional Programming
- [ ] Front-End Web Development
- [ ] Back-End Web Development
- [ ] Mobile Application Development
- [ ] Systems Programming
- [ ] Games Development
- [ ] Security
- [ ] Networks
- [ ] Cloud computing
- [ ] Database Administration

1 - Skills - Languages

- [ ] Client side Javascript
- [ ] Node
- [ ] PHP
- [ ] C / C++
- [ ] C# / Java
- [ ] Haskell
- [ ] F#
- [ ] Python
- [ ] R
- [ ] SQL
- [ ] Ruby

1 - Skills - Data Analysis and AI

- [ ] Machine learning
- [ ] Data Mining
- [ ] Statistical Analysis
- [ ] Visual Analytics
- [ ] Computer Vision
- [ ] Robotics
- [ ] Text Processing and Information Retrieval

1 - Skills - Business Analysis

- [ ] Business Analysis and Requirements Gathering
- [ ] Business Process Modeling
- [ ] Enterprise systems management
- [ ] Project management
- [ ] IS Consulting
- [ ] Information systems design

1 - Skills - UX And Interaction Design

- [ ] Interface design
- [ ] Web design
- [ ] Interaction/UX design
- [ ] Data visualisation
- [ ] User centred design methods
- [ ] Rapid prototyping
- [ ] Usability and accessibility evaluation

Let’s have a short break…

…and while you are there, if your team is complete, and all team members are here, why don’t you take a minute to register?

(yes… now)

This is why we are here.

PROJECTS

The Project

- The goal is to have as many real industry projects as possible
- We currently have more than 45 projects:
  - Large companies in a number of sectors
  - SMEs directly or via regional councils
  - Community organisations
  - Academic and research organisations
- We will also have default projects
  - Based on industry specifications
  - Internal supervisors

The Project Types

- This year we are trying to broaden the mix of Capstone projects beyond software systems
- Capstone Projects *may*:
  - Involve complex software systems
  - Involve an analysis of a business and its systems, processes and workflows
  - Explore technologies for a specific purpose.
  - Be machine learning or data science focused
  - Focus on interaction design, including user interfaces, or on the design of a whole new service.
  - Any combination of the above

Intellectual Property

- Varies from project to project
- By default: **students own the IP**
  - **In equal shares.**
- Exceptions (many)
  - Many industry projects require IP assignment
  - Mostly some compromise is offered
- If in doubt, discuss it with us or take independent advice.

Project Roles and Team Process

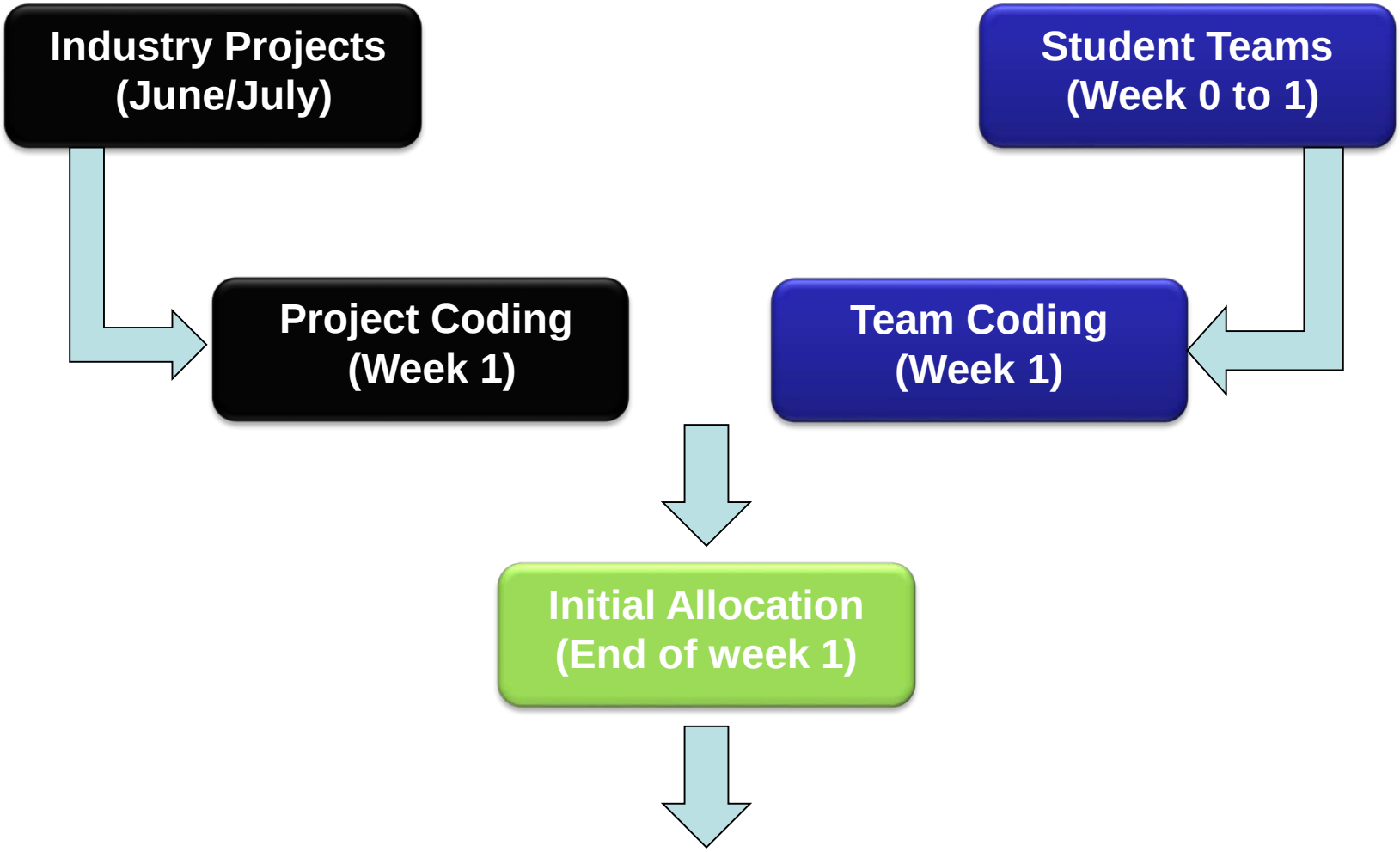
- Project management will be iterative
  - Understand what is required by the client
  - Schedule based on the client's priorities
  - [Subject to feasibility]
  - Keep the scope sane and sensible
  - Get something completed
  - Then do it all again.
- But the process will vary according to project

The Process

- We *require* all members of the team to be active across both units.
- We will guide you, but you also need to be conscious of your role.
- We will provide material on:
  - Requirements analysis
  - XP/Scrum and other Agile methods
  - User centred design and prototyping
  - Managing a business analysis

Making it work

PROJECT ALLOCATION



Team Name	Project Name	Company
MacroHard	Insurance Customer Service ChatBot	The Very Big Insurance Company of America
MySpaceSurvivors	Social Media Trend Analysis	The Company That Will Beat Facebook

The Allocation process

- Allocations sent to the Team & Industry Partner
- Capstone Teams:
  - Receive the project description and company info
  - Contact us within two days if there is an issue with the suitability of the project relative to team skills
  - You will need to meet us in person for this
- Industry Partners:
  - Receive the team CV
  - Assess the suitability of the team
  - Contact us within two days if any issues

The Allocation process

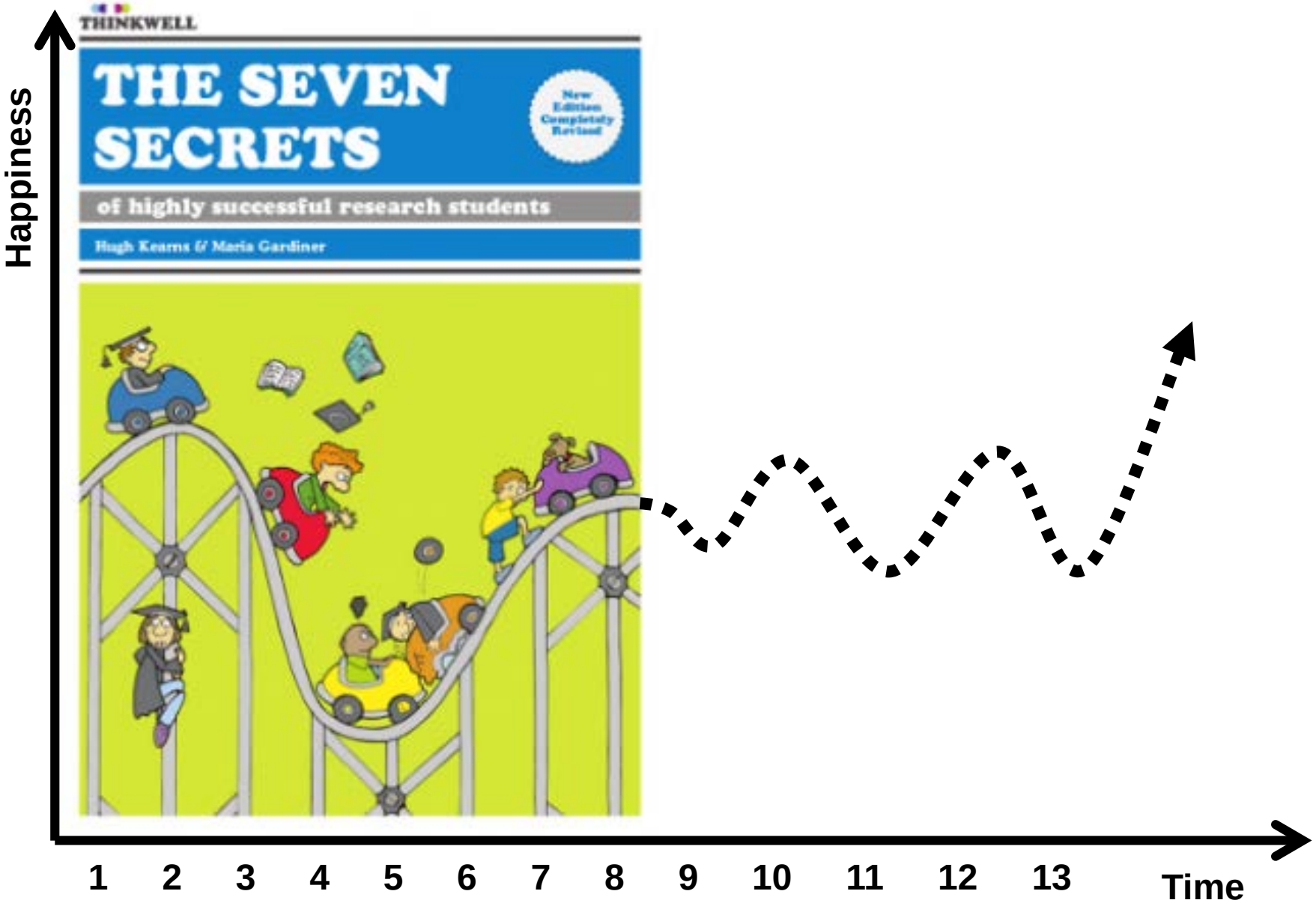
- If all is well, the student team MUST arrange a meeting with the partner within a week
- After that meeting, the allocation is final.
- If the allocation doesn't work out:
  - The team goes back into the team pool
  - The project goes back into the project pool
  - We allocate again every two days.
- By week 3 we expect you to be ready to start

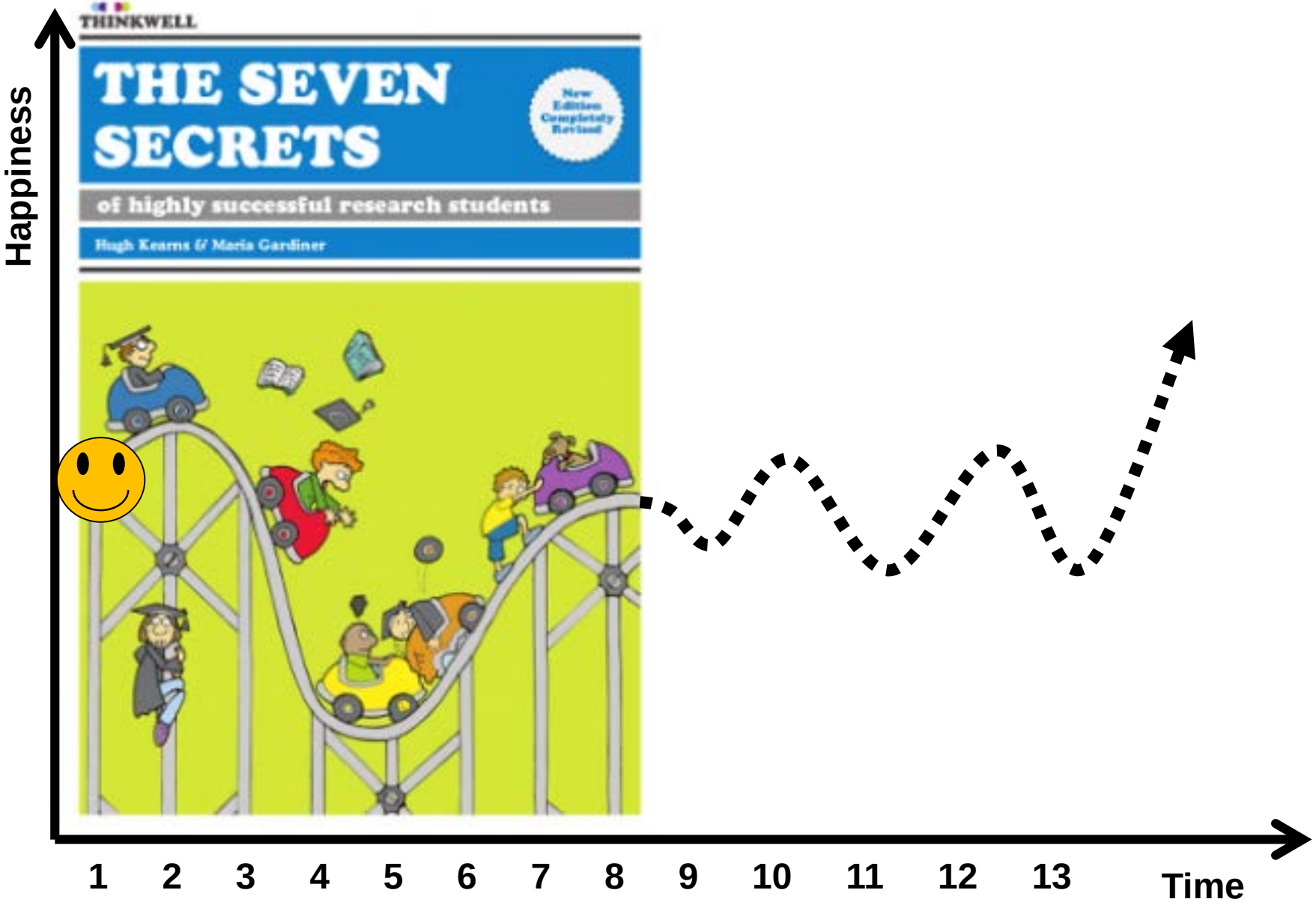
And then…

THE TIMELINE

- Week 0: Gathering Projects
- Week 1: Teams, Initial Project Allocation
- Week 2: Iterative Allocation; acceptance
- Week 3: Projects finalised and work commences
- Week 5: Review meetings every two weeks
- Week 8: Formative project presentation
- Week 13: Last Review meeting
- End of semester: Project Presentation; Interim Report due.

This is the core of the 398 experience




THINKWELL
THE SEVEN SECRETS
New Edition Completely Revised
of highly successful research students
Hugh Kearns & Maria Gardiner
Happiness
1
2
3
4
5
6
7
8
9
10
11
12
13
Time

The project and the process (in that order).

ASSESSMENT

Assessment Highlights

- The assessment is different from 2017
- We will explain this in more detail now, and again over the semester
- More focus on the project itself and less direct focus on the process

More Focus on the Project

- Greater report/artefact weighting (40%)
- Presentation important (15%) but more because of our glimpse of your project
- The supervisor (your client) gets to rate you and your team (20%)

Lesser Focus on the Process

- Tutor meetings in weeks 5,7,9,11 and 13
- Each one is worth 5% – so 25% in total
- Individual rather than group mark
- This 25% is ***yours to lose***.

Tutor meetings

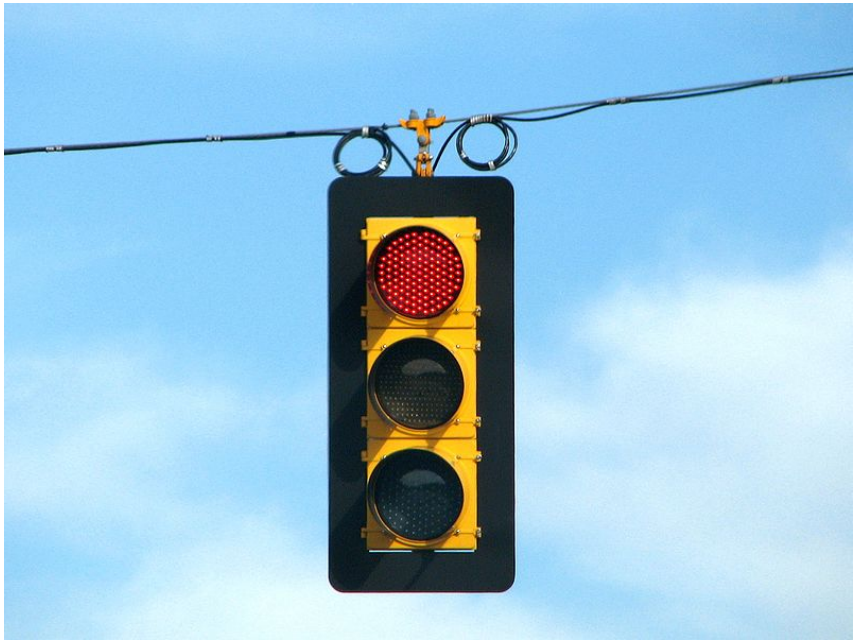
Our expectations are simple.

- What did you say you would do in time for this meeting?
- What did you actually do?
- What do you plan to do for next time?

Don't over-promise and never claim to have done work that you haven't done. We will eventually ask to see it.

Tutor Meeting: Traffic Lights

- Tutors will rate each team member using a traffic light system
- Green: All is fine (almost everyone)
- Amber: There are concerns. A warning that red is coming.
- Red: The work isn't happening.

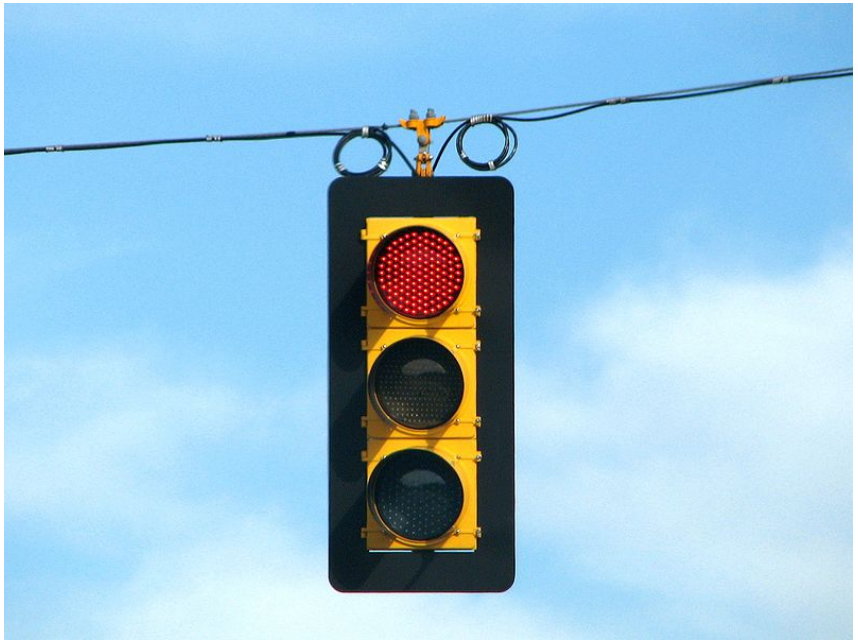


Kevin Payravi, Wikimedia Commons

https://commons.wikimedia.org/wiki/File:LED_traffic_light_on_red.jpg

Tutor Meeting: Traffic Lights

- We will publish more precise guidelines in time for the week 5 classes so that everyone is clear.
- We will also be requiring teams to use a similar system, though this won't be used directly in calculating the mark.



Kevin Payravi, Wikimedia Commons

https://commons.wikimedia.org/wiki/File:LED_traffic_light_on_red.jpg

Name	#1: Teamwork (process)
Description	**Team Process** You will manage and contribute to regular project management meetings during which your tutor will consider the progress of the team, and assess whether your contribution to the team is satisfactory. In the meeting you will reflect on your work as a team and discuss your progress with respect to tasks and goals agreed at the previous meetings. You will be required to provide evidence to your tutor of the work undertaken, and to examine critically any changes needed to the process and to your schedule in order to ensure success. The discussions will include reflection on your ethical behaviour and observations of the behaviour of others you have interacted with during the project's development.
Weighting	25%
Due date	Throughout semester
Duration	0
Internal or external	Internal
Group or individual	Individual
Relates to learning outcomes	1, 2,3,4,5

Name	#2: Project (applied)
Description	**Interim Project Report** You will provide an interim report on the progress of your project, incorporating discussion of the scope and outcomes agreed, and detailing your progress through the early exploratory phases and/or early iterations as appropriate. Your report should include detailed plans for the next phases of the project, specifying the project's goals, feasibility, scope and timeframe, which will extend into IFB399 in the following semester. This will include an individual reflection on your contributions, ethical behaviour and observations of the behaviour of others you have interacted with during the project's development. You will also produce an initial version of your deliverable by the end of semester, developed in incremental stages. This will include all material required by stakeholders, potential users or consumers of the system or material, and your supervisor. You must provide evidence of appropriate review and/or verification and validation of the deliverable.
Weighting	40%
Due date	Late semester
Duration	0
Internal or external	Internal
Group or individual	Group
Relates to learning outcomes	1, 2, 3, 4

Name	#3: Project (applied)
Description	**Progress Presentation** You will present your findings from the semester as a team to an audience of your peers, industry and community representatives, and members of the teaching team. You will seek to persuade those present that your project will achieve the agreed objectives.
Weighting	15%
Due date	Late semester
Duration	0
Internal or external	Internal
Group or individual	Individual
Relates to learning outcomes	1, 2, 4,5

Name	#4: Project (applied)
Description	**Project Supervisor Review** Your professionalism in working as part of the team and the success of the team to date in meeting the agreed objectives of the project will be assessed by your project supervisor(s).
Weighting	20%
Due date	Late semester
Duration	0
Internal or external	Internal
Group or individual	Group with Individual Component
Relates to learning outcomes	1,2,3,5

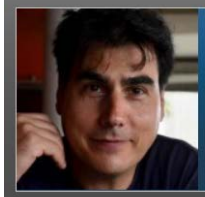
How to find stuff and contact us

GETTING HELP

Contact

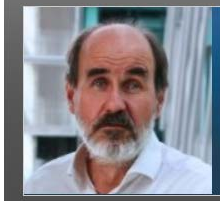
- Class email account: IT.capstone@qut.edu.au
  - Please do not email individual members of the teaching team (as the reply will be slower)
- Facebook Group:
  - https://www.facebook.com/groups/338287299909 57
- Blackboard:
  - Getting Started (most useful initially)
  - FAQ section will gradually grow as the semester progresses

About Us



Dr Alessandro Soro

Science and Engineering Faculty,
Electrical Engineering, Computer Science,
Computer Human Interaction



Associate Professor Jim Hogan

Science and Engineering Faculty,
Electrical Engineering, Computer Science,
Data Science

Mr Prakash Bhandari

Science and Engineering Faculty,
Information Systems,
Information Science

Dr Andrew Demasson

Science and Engineering Faculty,
Information Systems,
Information Science

Mr Mark Walpole

Science and Engineering Faculty,
Information Systems,
Information Science

Tutors

- Wayne Wood
- Michael Esteban
- Shailesh Palekar

- Please use the IT.Capstone alias for all queries