



NUS

National University
of Singapore

| **Computing**

Prasanna Karthik Vairam

Lecturer

Department of Computer Science

NUS School of Computing

CP5106: Computing Capstone Project



NUS | Computing
National University
of Singapore

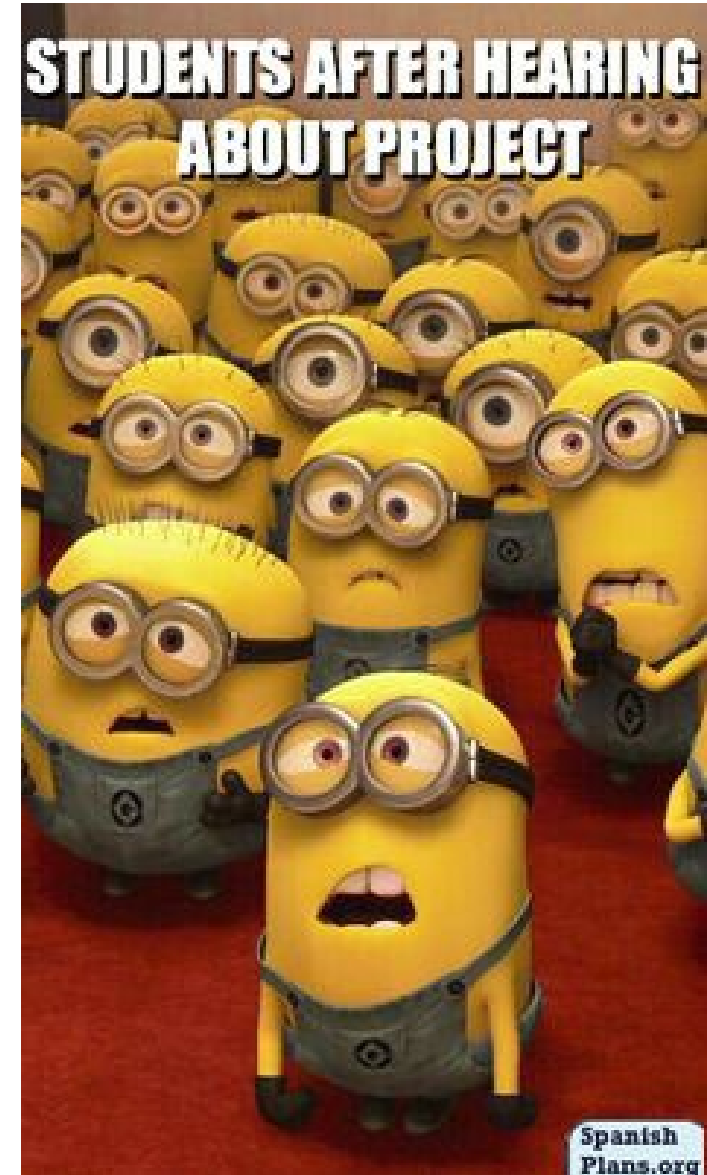
CP5106: Course Details

Course Description

- This course provides an opportunity for students to work with academic faculty to **identify and solve problems** beyond the formal classroom setting.
- **Outcome:** Through a combination of **experiential, self-directed learning** that spans over 4 months, it aims to develop **personal capabilities, professional competencies** and translates academic knowledge in either an industry or research setting.

Course Description

- **Number of Units:** 8 Units
- Spans over 4 months
- Workload that is equivalent to 2 regular courses.





Staff

- Lecturer/ Capstone Coordinator:
 - Prasanna Karthik Vairam
dcspkv@nus.edu.sg,
prasanna@comp.nus.edu.sg
- Capstone Secretariat In-Charge:
 - Geraldine Tang and Jin Xing
 - Email: gt-capst@comp.nus.edu.sg

Schedule

- **May 13th - Jun 13th** : First phase of the project (Learning the tools).
- **Jun 13th** : Interim report (form) submission and acceptance by advisor.
- **Jun 13th – Sep 1st** : Second phase of the project.
- **Sep 1st – Sep 14th** : Final report submission, presentation, and corrected report submission to DSPACE.
- **Dec:** Grade Finalization by advisor.
- **Details:** <https://mysoc.nus.edu.sg/pg/cp5106-computing-capstone-project-assessment-for-internal-project-only/>



NUS
National University
of Singapore

| **Computing**

CP5106: Issues from past experiences

Issue: Time better spent doing something else..

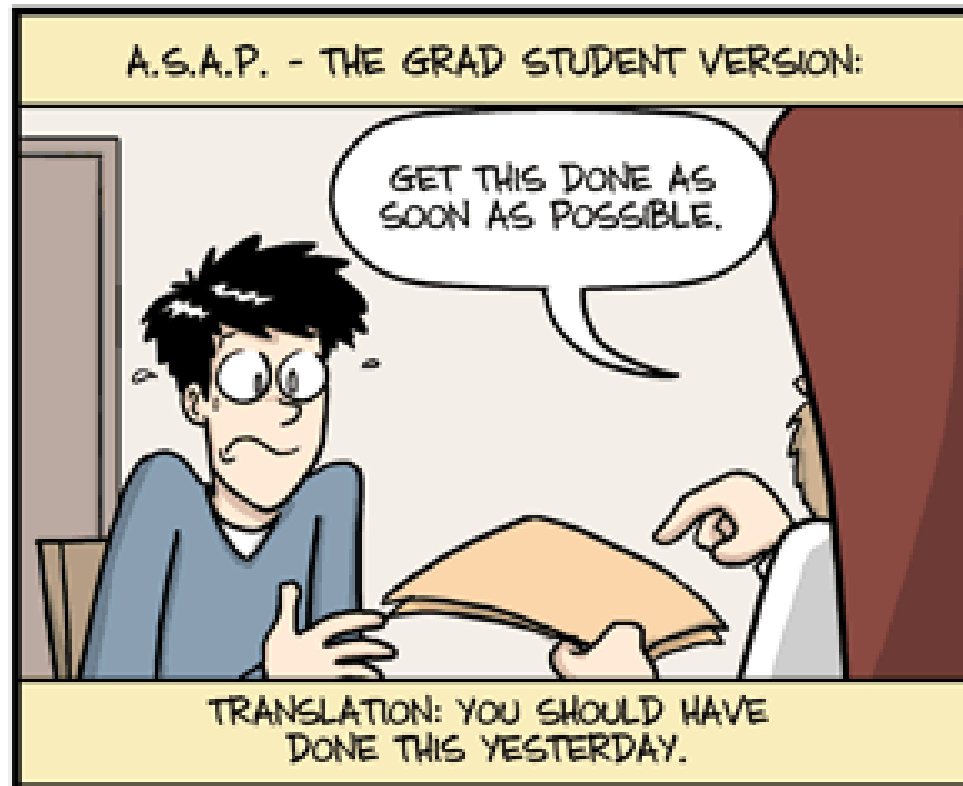
- Student's feel that they are better off doing something else..
 - Part time students:
 - Work commitments
 - Family commitments
 - Full time students:
 - Job interviews
 - Extra internships and side-projects

I spend most of my time at the gym searching for a better song on Pandora



someecards
user card

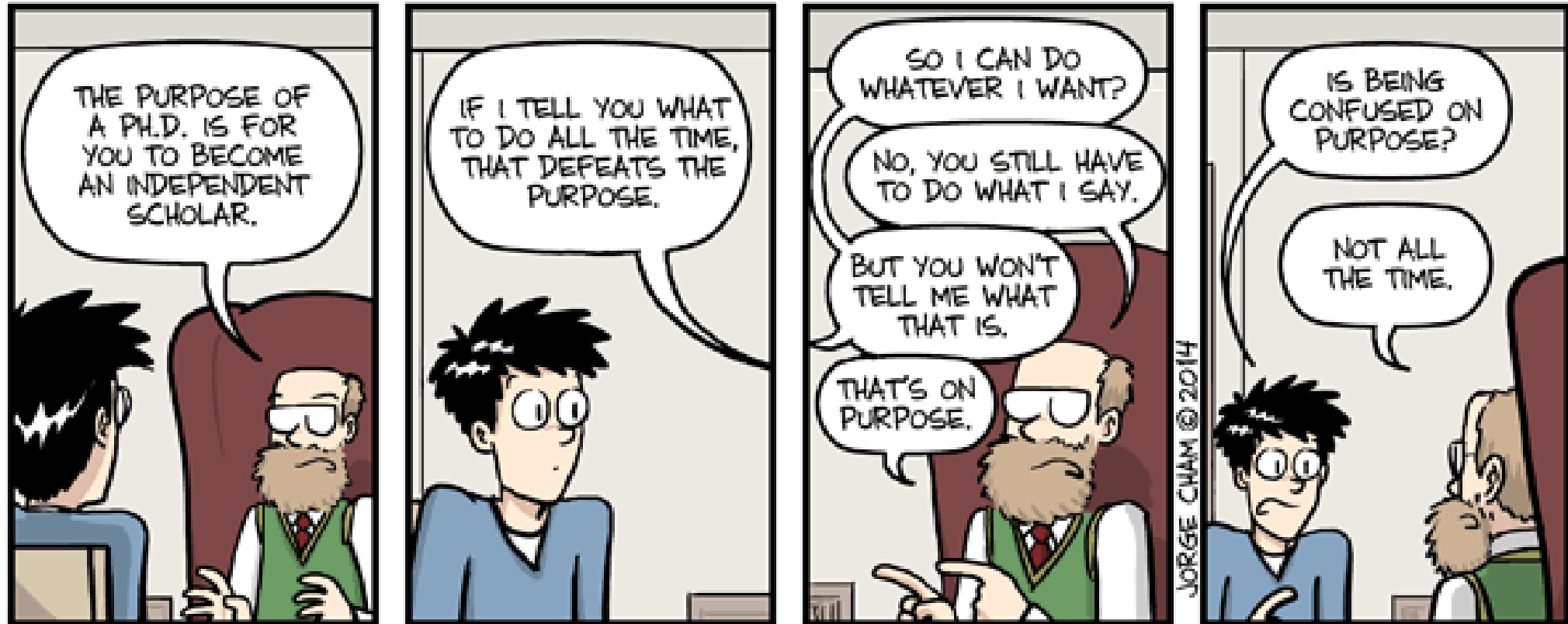
Issue: Timely feedback



JORGE CHAM © 2010



WWW.PHDCOMICS.COM

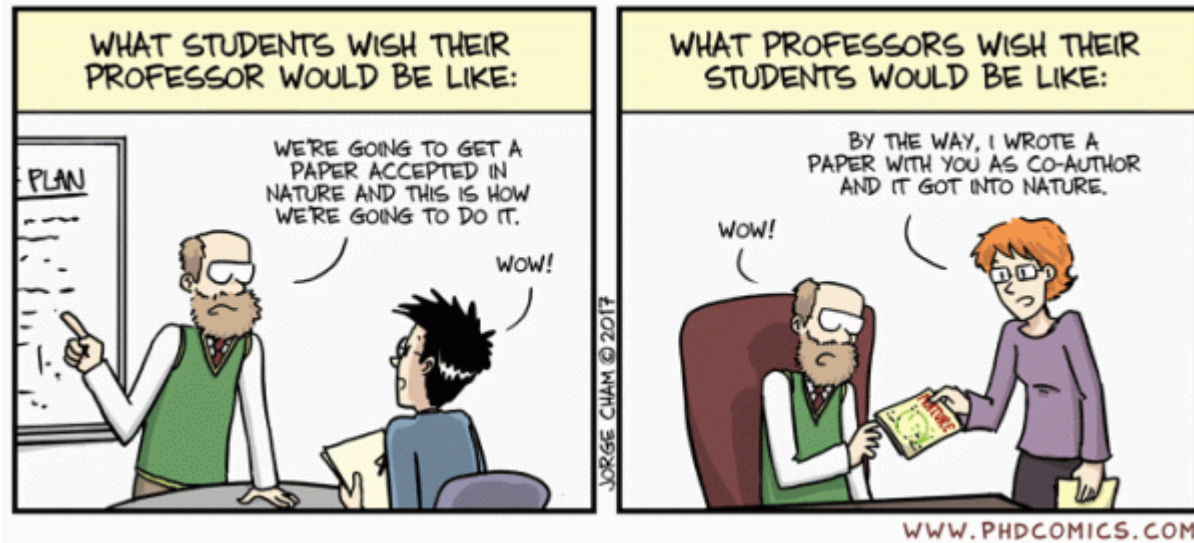


WWW.PHDCOMICS.COM

Issue: Confusing advise

Issue: Managing Expectations

- Mismatch of expectations between advisor and student derails the project,
...but it is, **unfortunately, very common.**



Issue: Language to Interact with advisor

when my gf ask me how she looks:



JRME-CLARK.TUMBLR

- Student's feel comfortable using their native language for **conversations** and writing **code/comments** on Windows or Mac Interface.
- Recommended to use English for these to ensure that you are better understood.

Issue: Data Privacy and Security



- This is not a **joke**..
- Singapore has strict cyber and data privacy laws.
- Make sure you never cross the line intentionally or unintentionally.
- Data (if proprietary) has to be handled carefully.
- API (if proprietary) has to be used carefully.

Issue: Setting up meetings with advisor



WAITING FOR
YOUR ADVISOR TO
SEND YOU AN
INVITE TO SCHEDULE

CONTACTING
THE ADVISING
OFFICES TO SCHEDULE
AN APPOINTMENT

GOING ONLINE
TO SCHEDULE YOUR
OWN APPOINTMENT



- Always setup meetings with your advisor to meet them.
- Do NOT catch your advisor off-guard in coffee shop, mailing room, etc. every time.
- Final Presentation:
 - Advisor need to be present.
 - The student must ensure that calendar conflicts are resolved.
- How to schedule a meeting through outlook?

Issue: Taking two
Internships at the
same time





NUS
National University
of Singapore

| **Computing**

CP5106: Suggested Practices

Project: Phase 1

- **Literature review:**

- A **well-defined problem statement** makes a great first-impression.
- Great problems **take time to define** – Many of our students feel that the problem is not well defined!
- Work with the academic advisor to **look at existing papers** and help refine the problem statement.
- Defining a reasonable problem will help set realistic goals for the project considering the 4 month timeline.

- **Relevant Courses:**

- If you have not done relevant courses officially, enroll in **online courses** as per suggestion of academic advisor.

Project: Interim report

- Interim report should contain progress in terms of
 - Problem Statement
 - Literature review
 - Relevant background reading
 - Implementation plan
 - Progress in coding/implementation (good to have)
- Submission:
 - Fill the web form (No doc/pdf submission possible).
 - Link to submit: <https://mysoc.nus.edu.sg/app/gentrack/index.php>

Project: Phase 1 and Phase 2

- **Implementing your work/Related Work:**

- Most implementations require you to **learn the tools** – your online courses may have taught you these or you may have to learn them yourself.
- **Availability of datasets** could be an issue.
- It is never too early to think about **implementation related hurdles** before you start a project.
- Try to have a **working prototype** at the end of first semester.

Project: Phase 2

- **Analysis/Research/Case Study**

- Implementing a solution is good but does not guarantee you the highest grade.
- Research projects require you to **think critically**.
- Examples of Critical thinking/Finding something new:
 - A new insight gained through the project should be provided.
 - Implement related work and show that your project works better.
 - Insight gained through case study
 - A nice analysis showing the pros and cons of your solution as compared to related works.

Project: Final Report and Presentation

- **Report Template:**

- <https://www.overleaf.com/read/msdryzbdbjjm>
- **Document flow** should be similar to the flow mentioned earlier: problem statement, literature review, background study, your solution, compare to other solutions/case study/analysis, conclusion.

- **Report Submission:**

- <https://mysoc.nus.edu.sg/app/gentrack/index.php>
- **Grading Scheme:** Usefulness of project, Technical content, Writing and Presentation.

- **Presentation:**

- Student is responsible for setting up the meeting with advisor.
- 30-40 mins presentation with slides.

- **Corrected/Accepted report:**

- To be submitted to DSPACE
- <https://mysoc.nus.edu.sg/~projadm/student/php/DLSubmission.php>

Work Ethics

- Academic Works are **prone to failure/change of direction** – blame game ensues when things go wrong!
- **Good work ethic and equation with advisor** always helps resolve problems before they become issues.
- Some suggestions:
 - **Regular working hours:** (e.g., work entire day on Wednesday, work from 9am-11am every day)
 - **Set expectations right:** Inform your advisor about your working hours and other commitments.
 - **Regular Meetings:** Suggested that you meet the advisor every week in person/zoom. When advisor is not available every week, send them an email titled, e.g., “work done over week 6 AY22-23”.
 - **Missing Meetings:** These create a bad impression. Why does this happen? What are the suggested alternatives?

When things don't go right...

- **Meet your capstone coordinator** and look for ways to correct the problem before it becomes an issue!
- For the 4-month internal capstone, there is no backup plan.
 - But, don't worry: follow the rule of meeting your advisor every week.
- If you have been assigned a project for which you do not have any background (e.g., Computer vision), then please get in touch with me.