

Static Program Analysis - Plano de Ensino para Aulas Remotas

DCC831 - Pós-Graduação em Ciência da Computação

DCC030 - Bacharelado em Ciência da Computação

DCC049 - Bacharelado em Sistemas de Informação

This course shall be given in English. Remote classes will consist of videos, posted at <https://www.youtube.com/>, plus exercises. Videos will be available at: https://www.youtube.com/playlist?list=PLC-dUCVQghfdu7AG5f_p4oRyKgiDuoAWU

Exercises must be turned in via email to the course instructor (fernando@dcc.ufmg.br), every Tuesday, no later than 5:00pm. Exercises can be typed, or handwritten. In the latter case, a photograph of the answers must be sent. Every other week there will be a synchronous Q&A meeting, always on Thursdays, at 5:00pm, via Google Meet (Links shall be added to the calendar events). Questions shall be answered in these meetings. Written questions (asynchronous questions) can be posted as comments under the corresponding video, in the youtube website, or posted in the discussion list. The full syllabus is available at the course website. Links to the videos are also in the website, at: <https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/>.

There will be 5.0 extra points that shall be distributed to students who comment on videos or answer questions. Each comment or answer is worth 0.5 points. Questions do not count towards extra points. The schedule follows below:

Class	Date	Subject Covered in the First Part of the Course	Format
1	May 18th	Introduction	Sync
2	May 20th	Control flow graphs	Async
3	May 25th	Dataflow analyses	Async
4	May 27th	Algorithms to solve dataflow analyses	Async
5	Jun 1st	Lattice theory	Async
6	Jun 3rd	Partial redundancy elimination	Async
7	Jun 8th	Q&A	Sync
8	Jun 10th	Constraint based analysis	Async
9	Jun 15th	Pointer analysis	Async
10	Jun 17th	Loop optimizations	Async

11	Jun 22nd	Static single assignment form	Async
12	Jun 24th	Sparse abstract interpretation	Async
13	Aug 27th	Tainted flow analysis	Async
14	Jun 29th	Paper discussion	Sync
15	Jul 1st	Review class	Sync
Class	Date	Midterm exam	Async
16	Jul 6th	Subject Covered in the Second Part of the Course	Async
17	Jul 8th	Range analysis	Async
18	Jul 13th	Program slicing	Async
19	Jul 15th	Operational semantics	Async
20	Jul 20th	Type systems	Async
21	Jul 22nd	Mechanical validation of theorems with Twelf	Async
22	Sep 27th	Q&A	Sync
23	Jul 29th	Type inference	Async
24	Aug 3rd	Just-in-time compilers	Async
25	Aug 5th	Register allocation	Async
26	Aug 10th	SSA-based register allocation	Async
27	Aug 12th	Divergence analysis	Async
28	Aug 17th	Paper discussion	Sync
29	Aug 19th	Review class	Sync
30	Aug 24th	Final exam	Async

On the exams: the two evaluations shall be performed asynchronously. Students will receive the exam at 5:00pm on the scheduled day, and will have 23:59:59 hours to email answers back to the instructor. Exams can be done in pairs.

On the project assignment: the project assignment remains as defined at <https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/assignment/>.

On the weekly homeworks: homeworks are worth 1.0 points each, and are available at:
<https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/ementa/>.

On the videos: Videos will be posted on youtube. There will be links to the videos at:
<https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/ementa/>.

On extra points: comments or answers (as youtube comments) are worth 0.5 points each.

On the research project: students can replace either the first and/or the second project with a research project, which must be agreed with the course instructor.