

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. Exercises must be turned in via email to the course instructor (fernando@dcc.ufmg.br), every Tuesday, no later than 2:55pm. 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 2:55pm, via Microsoft Teams. Questions shall be answered in these meetings. Additionally, questions can be posted as comments under the corresponding video, in the youtube website. The full syllabus is available at <https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/>.

Class	Date	Subject Covered in the First Part of the Course	Format
1	Mar 3rd	Introduction	On site
2	Mar 5th	Control flow graphs	On site
3	Mar 10th	Dataflow analyses	On site
4	Mar 12th	Algorithms to solve dataflow analyses	On site
5	Mar 17th	Lattice theory	Async
6	Aug 4th	Partial redundancy elimination	Sync
7	Aug 6th	Constraint based analysis	Async
8	Aug 11th	Pointer analysis	Async
9	Aug 13th	Loop optimizations	Sync
10	Aug 18th	Static single assignment form	Async
11	Aug 20th	Sparse abstract interpretation	Async
12	Aug 25th	Tainted flow analysis	Async
13	Aug 27th	Paper discussion	Sync
14	Sep 1st	Review class	Sync
15	Sep 3rd	Midterm exam	Async

Class	Date	Subject Covered in the Second Part of the Course	Format
16	Sep 8th	Range analysis	Async
17	Sep 10th	Program slicing	Async
18	Sep 15th	Operational semantics	Async
19	Sep 17th	Type systems	Sync
20	Sep 22nd	Mechanical validation of theorems with Twelf	Async
21	Sep 24th	Type inference	Async
22	Sep 29th	Just-in-time compilers	Async
23	Oct 1st	Register allocation	Sync
24	Oct 6th	SSA-based register allocation	Async
25	Oct 8th	Correctness	Async
26	Oct 13th	Divergence analysis	Async
27	Oct 15th	Automatic parallelization	Async
28	Oct 20th	Paper discussion	Sync
29	Oct 22nd	Review class	Sync
30	Oct 27th	Final exam	Async

On the exams: the two evaluations shall be performed asynchronous. Students will receive the exam at 2:55pm 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/>.