

# Geometric Algorithms (INFOGA)

Year 2016/2017, block 4: April-June 2017

## Lecturers

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## News

- (June 28, 2017)
  - The [grades for the final exam](#) are available, as well as the **final grades** (before retakes). Congratulations to those who passed already!
  - The final column of the table shows whether you have passed the course, have failed the course, or require one or two retakes. Please look at your individual grades to see which retake(s) you need to do. Note that you can still pass the course even if you need both retakes.
  - If your individual grades are high enough but their weighted average is lower than 5.5, then you still require a retake, and we will contact you about the options.
  - [Homework exam 3](#) distributed. This is a retake: you can only receive a grade for it if you really require a retake for the homework exams.
  - Thank you for attending this course! Please fill out the Caracal questionnaire about the course to give us feedback.
- (June 21, 2017)
  - The [grades for homework exam 2](#) are available.
  - Some [answers and notes](#) are available as well.
  - Tomorrow, we will hand out your graded work with comments.
  - Remember: if one of the two grades is lower than 5 (shaded in the PDF), you can still pass the course if you pass a retake homework exam. See the "Grading" section below for more details.
- (June 20, 2017) The slides of today's "Implementation" lecture are now online (see schedule).
- (June 12, 2017) Thursday's lecture will be about the first parts of Chapter 10. The schedule and exam material have been updated.
- (June 8, 2017) We've updated the schedule for the remainder of the course, as well as the final exam material. Any material marked as "TBA" will be added as soon as possible.
- (June 1, 2017) [Homework exam 2](#) distributed. If anything is unclear, please let us know.
- (May 31, 2017)

- The [grades for homework exam 1](#) are available.
- Some [answers and notes](#) are available as well.
- Tomorrow, we will hand out your graded work with comments.
- (May 10, 2017) [Homework exam 1](#) distributed.
- (April 25, 2017) The two homework exam Q&A sessions will take place in BBG 0.05, *after* a regular Tuesday lecture. See the schedule below.
- (April 24, 2017) There will be two extra sessions in which you can ask questions about the homework exam (if you want to). These sessions will most likely take place on Tuesday afternoons; the exact times and locations are still pending.
- (April 13, 2017) First update of the web page, with tentative schedule.  
This page is still under construction. [Click here to visit last year's website.](#)

## Course literature

We will use the book [Computational Geometry - Algorithms and Applications](#) by de Berg, Cheong, van Kreveld, and Overmars, third edition, 2008. The course will treat most of Chapters 1-10, along with some other topics.

## Schedule (tentative)

Week	Date	Topic	Book	Slides	Exercises in book	Other notes
Week 17	April 25	Introduction	Chapter 1	<a href="#">slides 1</a>	1.3, 1.6a, 1.7a-d, 1.9	
	<i>April 27</i>	<i>No classes (Koningsdag)</i>				
Week 18	May 2	Line segment intersection (1/2)	Chapter 2 (part)	<a href="#">slides 2a</a>	2.2, 2.3, 2.11, 2.12	
	May 4	Line segment intersection (2/2)	Chapter 2 (rest)	<a href="#">slides 2b</a>	2.5-8, 2.13, 2.14	
Week 19	May 9	Polygon triangulation	Chapter 3	<a href="#">slides 3</a>	3.3, 3.4, 3.9, 3.12, 3.14	
	May 11	Linear programming	Chapter 4 (part)	<a href="#">slides 4a</a>	4.1, 4.3, 4.7	<a href="#">Homework exam 1 distributed</a>
Week	May 16	Smallest	Chapter 4	<a href="#">slides</a>	4.10, 4.12, 4.14	

20		enclosing disks and more	(rest)	<a href="#">4b</a>		
		Extra session: Homework exam 1 Q&A (15.15-16.15, BBG 0.05)				
	May 18	Range searching (1/2)	Chapter 5 (part)	<a href="#">slides 5a</a>	5.1, 5.2, 5.5	
Week 21	May 23	Range searching (2/2)	Chapter 5 (rest)	<a href="#">slides 5b</a>	5.7, 5.8, 5.10, 5.11, 5.12	<b>Hand in homework exam 1</b>
	May 25	<i>No classes (Hemelvaartsdag)</i>				
Week 22	May 30	Voronoi diagrams (1/2)	Chapter 7 (part)	<a href="#">slides 7a</a>	7.1, 7.5, 7.7, 7.10, 7.11	
	June 1	Planar point location	Chapter 6	<a href="#">slides 6</a>	6.1, 6.3, 6.4, 6.5, 6.6	<a href="#">Homework exam 2 distributed</a>
Week 23		Voronoi diagrams (2/2)	Chapter 7 (rest)	<a href="#">slides 7b</a>	7.14, 7.15, 7.16	
	June 6	Extra session: Homework exam 2 Q&A (15.15-16.15, BBG 0.05)				
	June 8	Delaunay triangulations	Chapter 9	<a href="#">slides 9</a>	9.2, 9.11, 9.12, 9.13, 9.16	
Week 24	June 13	Arrangements + Research projects ( <b>Location: ANDRO-C138</b> )	Chapter 8	<a href="#">slides 8</a> + Extras	8.2, 8.3, 8.4, 8.7, 8.8, 8.12, 8.15, 8.16	<b>Hand in homework exam 2</b>
	June 15	Windowing queries	Chapter 10 (excluding	<a href="#">slides 10</a>	10.1, 10.9, 10.10	

			Section 10.3)			
Week 25	June 20	Implementation	<i>n/a</i>	<a href="#">slides</a>	<i>n/a</i>	
	June 22	Exam practice				Homework exam 2 returned
Week 26	June 27 (Tuesday)	<b>Final Exam, 13.30-16.30 EDUC-MEGARON</b>				

## Final exam material

The subject matter for the final exam consists of the following:

- everything in Chapters 1-10 of the book (with the exception of Sections 4.5, 4.6, 6.4, 9.5, 10.3, and the Notes and Comments sections);
- all slides downloadable from the schedule, i.e. including those of the "Implementation" lecture, but excluding the "Extras" below;
- all exercises from the book listed in the schedule.

You may not use the textbook, nor your notes, nor the lecture slide copies during the exam.

## Extras

In one of the last sessions, Marc will give an overview of various research projects from the recent past. This will make use of some of the presentations listed below. These presentations are *not* exam material.

- [Generating Realistic Terrains](#)
- [Building Generalization](#)
- [Time-Space Maps](#)
- [Proportional Symbol Maps](#)
- [Quality Ratios in Graph Drawing](#)
- [Connecting the Dots](#)

## Grading

The final grade is based on two homework exams and one final exam. Each of these three items must be graded with at least a 5. Then the final grade is determined by the weighted average, where the exam counts for half and each of the homework exams for a quarter.

If one of the three items is graded (strictly) lower than 5, then you need a re-take. The grade for the final exam can be replaced by the grade for the re-take exam in July. If one of the homework exams has a grade lower than 5, then you can make a third homework exam after the final exam, whose grade will replace the grade lower than 5. If both of the homework exams have a grade lower than 5 (or you did not make them), then you automatically fail the course.

So, when you follow this course, there is a commitment to actively participate and you cannot wait until the final exam.

## Previous exams

Below are the **final exams** from previous years. Note that some exams concerned slightly deviating material.

- [Exam of 2015](#)
- [Exam of 2014](#)
- [Exam of 2013](#)
- [Exam of 2012](#)
- [Exam of 2011](#)

Just to see a previous year's first **homework exam** plus the comments I wrote after correcting it, see [the 2011 first homework exam](#), and [my comments](#) on it.

## Feedback

Please fill in the standard questionnaire for students to give feedback on the course.