Bachelor Curriculum Computing Science

Prof. Jos Roerdink
Variants ("tracks")

1. Regular bachelor track

2. Biomedical Computing track  
   (contact person: prof. Jos Roerdink)

3. Business Computing track  
   (contact person: prof. Paris Avgeriou)

In tracks 2 and 3, 30 EC of the regular program are replaced by other course elements
<table>
<thead>
<tr>
<th>Period</th>
<th>Regular</th>
<th>Biomed. Comp.</th>
<th>Business Comp.</th>
<th>EC</th>
</tr>
</thead>
</table>
| 1.1    | Imperative Progr  
Introd. Comp. Sci. | Imperative Progr  
Introd. Comp. Sci. | Imperative Progr  
Introd. Comp. Sci. | 5 |
| 1.2    | Introd. Logic  
**Intro Biomed Comp**  
OR **Auton. systems**  
Calculus | Introd. Logic  
**Intro Biomed Comp**  
Calculus | Introd. Logic  
**Intro Biomed Comp**  
OR **Auton. systems**  
Calculus | 5 |
| 1.3    | Alg Datastruct in C  
Discrete Structures  
Comp Arch Networks | Alg Datastruct in C  
Discrete Structures  
Comp Arch Networks | Alg Datastruct in C  
Discrete Structures  
**Business Intellig.** | 5 |
| 1.4    | Progr Correctness  
Object Or. Progr.  
Linear Algebra | **Bioinformatics**  
Object Or. Progr.  
Linear Algebra | Progr Correctness  
Object Or. Progr.  
Linear Algebra | 5 |
Remarks year 1

- **Students of the regular track:**
  Recommended in period 1.2: 
  **Introduction to Biomedical Computing.**
  Alternative: Autonomous Systems (AI)
- Before the start of period 4:
  Inform the study advisor about the track of your choice
- After period 1.4 you can always return to the regular program
<table>
<thead>
<tr>
<th>Period</th>
<th>Regular</th>
<th>Biomed. Comp.</th>
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<th>EC</th>
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<tbody>
<tr>
<td>2.1</td>
<td>Statistics</td>
<td>Statistics</td>
<td>Statistics</td>
<td>5</td>
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<tr>
<td></td>
<td>Func. Progr</td>
<td>Func. Progr</td>
<td>Marketing BDK</td>
<td>5</td>
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<tr>
<td>2.2</td>
<td>Signals &amp; Systems</td>
<td>Signals &amp; Systems</td>
<td>Signals &amp; Systems</td>
<td>5</td>
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<tr>
<td>2.3</td>
<td>Softw Engineering I</td>
<td>Softw Engineering I</td>
<td>Softw Engineering I</td>
<td>5</td>
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<tr>
<td></td>
<td>IT Business Practice</td>
<td>IT Business Practice</td>
<td>IT Business Practice</td>
<td>5</td>
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<tr>
<td>2.4</td>
<td>Softw Engineering II</td>
<td>Softw Engineering II</td>
<td>Softw Engineering II</td>
<td>5</td>
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<tr>
<td></td>
<td>Parallel Computing</td>
<td>Parallel Computing</td>
<td>Parallel Computing</td>
<td>5</td>
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<tr>
<td></td>
<td>Languages &amp; Mach.</td>
<td>Imaging techniques</td>
<td>Imaging techniques</td>
<td>5</td>
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<td>Manag Product Innov</td>
<td>5</td>
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### Year 3

<table>
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<tr>
<th>Blok</th>
<th>Regulier</th>
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<th>Business Comp.</th>
<th>EC</th>
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</table>
| 3.1  | Softw Requirem Eng Information Security Intro Intell Systems | **Neurobiology (D)**  
**Electives (2 of 3):**  
- Softw Requirem Eng  
- Information Security  
- Intro Intell Systems | Softw Requirem Eng Information Security Intro Intell Systems | 5 |
**Electives (2 of 3):**  
| 3.4  | Bachelor Project | **Bachelor Project**  
**Biomed Computing** | **Bachelor Project**  
**Business Computing** | 15 |

In periods 3.1+3.2 you can also choose another minor.
The number of English-taught minors is currently limited.
Track Biomedical Computing

- Started in 2010-2011
- 4 courses that combine Biomedical and CS
  - Introduction to Biomedical Computing (5EC)
  - Bioinformatics (WLP10B21, 5EC)
  - Imaging techniques (WLB07050, 5EC) In Dutch
  - Neurobiology (WLB07086, 5EC) In Dutch
- Bachelor project Biomedical Computing (15EC)
  - Can be joint project with biology/medicine
Why choose the Biomedical Computing track?

› Working on the boundary between CS and Biomedical Science appeals to you.
› You enjoy working together with biologist and/or medical researchers.
› You enjoy algorithm design.
› There is an increasing need for technical people in biomedical research: jobs!
› Many start-ups in this area.
Interested?

› “Maybe for me, but I am not sure ...”
› First try:
  • Introduction to Biomedical Computing (period 1.2) and/or
  • Bioinformatics (period 1.4)
› Then make a choice:
  1. Continue with remainder of the track
  2. Back to the regular bachelor program
Special study programs

› If you would like to change one of more elements of the predefined programs (regular, biomedical computing, business computing) you can always discuss this with the study advisor or one of the track coordinators.

› Decisions about special study programs are taken by the Exam Committee.
Business Computing
A track for business-oriented students

› Prof.dr.ir. Paris Avgeriou - paris@cs.rug.nl

Software Engineering and Architecture Group
http://www.cs.rug.nl/~paris/
Track of Business Computing

› First time in 2011-2012
› 4 FEB courses (5EC)
  • Business Intelligence (1.3) Computer Architecture & Networks
  • Marketing BDK (2.1 and NL) Functional Programming
  • Management of Product Innovation (2.4) Languages & Automata
  • Architecture & Infrastructure (3.2)
› A graduation project in BC (15 EC)
  • Possible joint project between FWN and FEB
Why follow the BC track?

› Keen interest in the business side of CS?
› How is information turned into business intelligence?
› Entrepreneur? Establish a start-up? New product?
› Broaden skills with management and marketing?
› Want to tune your CV towards market needs?
› Aligning business models with SW architectures?
Tempted?

› “Maybe for me but not sure...”
› Try out the first year
   • Business Intelligence instead of CAN
› Then either
   1. follow the rest of the track
   2. or switch back to the regular BSc program.
   • No additional requirements
Thank you for your attention