

| Utrecht Summer School: '3D Printing and Biofabrication' | | Program | | 15-19 July 2019 | |
|--|--|--|--|--|--|
| | Time | Location | Topic | Speaker | |
| Monday | 15-jug | | | | |
| Introduction and additive manufacturing in medicine | 9.30 - 10.00 | UMC Yellow lecture hall | Check in and coffee | | |
| | 10.00 - 10.10 | | Welcome & Course Overview | Jos Malda | |
| | 10.10 - 10.20 | | Mobile app and course program | | |
| | 10.20 - 10.45 | | Student Introductions | Florencia Abinzano | |
| | 10.45 - 11.45 | | Basics of Additive Manufacturing | Riccardo Levato | |
| | 11.45 - 12.45 | | Lunch (Included) | | |
| | 12.45 - 13.15 | | 3D printing of metals | Amir Zadpoor (TU Delft, Netherlands) | |
| | 13.15 - 13.45 | | Bioprinting with hydrogel, thermoplasts and ceramics | Michael Gelinsky (TU Dresden, Germany) | |
| | 13.45 - 14.15 | | 3D printing and Ultimaker | Kristol Boere (Ultimaker, Netherlands) | |
| | 14.15 - 14.45 | | Coffee break | | |
| 14.45 - 15.15 | Medical 3D Planning and Printing: Optimal Medical Solutions for Better Clinical Outcomes | Simon Lejaegere (Materialise NV, Belgium) | | | |
| 15.15 - 16.45 | Generation of 3D anatomical models using medical data | Simon Lejaegere (Materialise NV, Belgium) | | | |
| 16.45 - 17.30 | Explaining assignments | Jos Malda / Riccardo Levato | | | |
| Tuesday | 16-jug | | | | |
| Hands-on workshop 3D Printing | 8.15 - 9.00 | Protospace | Introduction fablab | Joris van Tubergen | |
| | 9.00 - 9.30 | Location: Padualaan 99 | 1. Getting to know the firmware: introduction to gcode and using it on bioprinting, z-corp) 2. workflow introduction, 3D drawing (tinkercad) & printing 3. Hands-on machine work with different material (porcelain, chocolate, PLA) | 1. Jan Jaap Schuurman 2. Marry Bassa 3. Joris van Tubergen | |
| | 10.00 - 12.00 | Start workshops, choosing 1 out of 3. | Lunch with lecture about scanning for prostheses | | |
| | 12.00 - 13.00 | Start workshops, choosing 1 out of 3. | 1. Getting to know the firmware: introduction to gcode and using it on bioprinting, z-corp) 2. workflow introduction, 3D drawing (tinkercad) & printing 3. Hands-on machine work with different material (porcelain, chocolate, PLA) | 1. Jan Jaap Schuurman 2. Marry Bassa 3. Joris van Tubergen | |
| | 13.00 - 15.30 | Start workshops, choosing 1 out of 3. | 1. Getting to know the firmware: introduction to gcode and using it on bioprinting, z-corp) 2. workflow introduction, 3D drawing (tinkercad) & printing 3. Hands-on machine work with different material (porcelain, chocolate, PLA) | 1. Jan Jaap Schuurman 2. Marry Bassa 3. Joris van Tubergen | |
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| 18.00 | End | | | | |
| Wednesday | 17-jug | | | | |
| 3D bioprinting and biofabrication technologies | 7.45 - 9.30 | UMC Blue lecture hall | Live surgery streaming + can a printer solve patient-specific challenges? | Roel Custers / Koen Willemsen | |
| | 9.30 - 10.00 | Introduction to Regenerative Medicine & Stem Cells | Bernard Roelen | | |
| | 10.00 - 10.15 | Coffee break | | | |
| | 10.15 - 10.45 | Organ printing: past, present and future | Vladimir Mironov (3D Bioprinting Solutions, Russia) | | |
| | 10.45 - 11.15 | Electrospinning for biofabrication | Lorenzo Moroni (Maastricht University, Netherlands) | | |
| | 11.15 - 11.45 | High-resolution biofabrication and two-photon printing | Aleks Ovsianikov (TU Wien, Austria) | | |
| | 11.45 - 13.00 | Meet the expert lunch (Included) | | | |
| | 13.00 - 13.30 | Organs on chips | Andries van der Meer (Twente University, Netherlands) | | |
| | 13.30 - 14.00 | Electrospinning writing | Paul Dalton (Wuerzbrug University, Netherlands) | | |
| | 14.00 - 14.30 | Extrusion-based biofabrication | Wojciech Swięszkowski (Warsaw University of Technology, Poland) | | |
| 14.30 - 14.45 | Coffee break | | | | |
| 14.45 - 15.15 | Regulatory requirements and developments with respect to 3D (bio)printing | Hanneke Later-Nijland (Axon Lawyers, Netherlands) | | | |
| 15.15 - 15.45 | 3D Bioprinting for in vitro Tissue Engineering | Wei Sun (Drexel and Tsinghua Universities, USA and China) | | | |
| 15.45 - 16.45 | Bioprinting demonstration | SunP Biotech (USA) | | | |
| Thursday | 18-jug | | | | |
| Applications of 3D biofabrication | 9.00 - 9.30 | Hubrecht Auditorium | Printing articular cartilage | Florencia Abinzano | |
| | 9.30 - 10.00 | | Printing Bone and 3D tissue models | Jaqueline Alblas | |
| | 10.00 - 10.15 | | Coffee break | | |
| | 10.15 - 10.45 | | Printing of an oviduct model | Heiko Henning | |
| | 10.45 - 11.15 | | Biofabrication of perfusable hepatocyte constructs and artificial bile ducts | Bart Spee | |
| | 11.15 - 11.45 | | Cell aggregation, bioassembly and in vitro tissue models | Michiya Matsusaki (Osaka University, Japan) | |
| | 11.45 - 12.45 | | Lunch (Included) | | |
| | 12.45 - 13.30 | | Printing of cardiac tissue grafts | Miguel Castilho | |
| | 13.30 - 14.00 | | 3D bioprinting and industry innovation | Hannah Berthag (Cellink, Sweden) | |
| | 14.00 - 16.30 | | Laboratory tour and 3D bioprinting workshop | Cellink, Riccardo Levato, Quentin Peiffer | |
| 16.30 - 18.00 | Work on assignment | | | | |
| Friday | 19-jug | | | | |
| Presentations assignments, Wrap Up | 9.00 - 9.30 | UMC Yellow lecture hall | Key collection | Riccardo Levato | |
| | 9.30 - 10.30 | Advanced bioinks and hydrogels in biofabrication | Jason Burdick (University of Pennsylvania, USA) | | |
| | 10.30 - 12.00 | Presentations | | | |
| | 12.00 - 12.15 | Announcement of award for best presentation | | | |
| | 12.15 - 12.45 | Wrap-up | Jos Malda | | |
| 12.45 - 14.00 | Class Lunch (Included) | | | | |