

BIMA3210

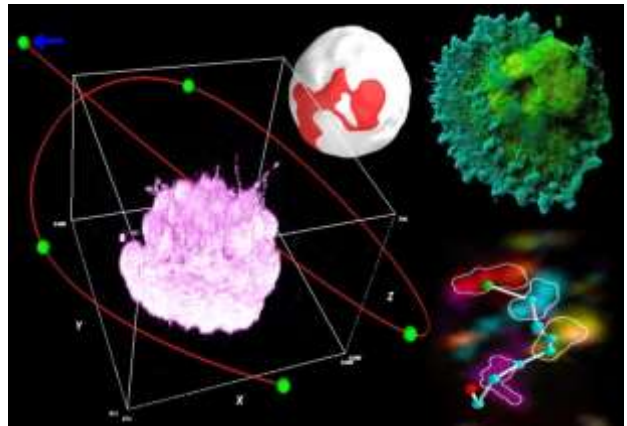
Biolmage Informatics II, 2020

Teacher: Pasi Kankaanpää (ÅAU/UTU)

Place: Teutori computer class 104

Registration: By 15th of January 2020 at <https://forms.gle/rG7zZdhAQsbk2EL88>

Contact: bima-office@bioimaging.fi



To who: For any scientist dealing with digital bioimages, and especially those wanting to get more out of their images, both in terms of visual impact and numerical results. A must for the BioImaging Master's Program students and anyone hoping to work professionally with microscopy or bioimage analysis.

Objectives: On this course students learn how to visualize, animate, process and quantitatively analyze multi-dimensional digital bioimages. The focus is on how to do things in practice, from the point of view of an image analyst or life scientist. The course is based on real-life research case studies and examples, and provides opportunities for discussing and learning also trouble shooting and independent scientific thinking related to image analysis and imaging experiments. The course is a continuation to BIMA3209 Bioimage Informatics 1, and includes going through and expanding on BIMA3209 exercises. However, BIMA3209 is not a requirement for this course, if the student has corresponding knowledge otherwise.

Content: Typically the course covers for instance 3D rendering and animation, colocalization analysis, segmentation-based analyses, quality checks and trouble shooting of analysis results, batch processing large amounts of data, motion tracking, basics of machine and deep learning, and ethics and guidelines for working with digital images. Other topics on advanced image analysis may also be included. The course content is to some extent adjusted based on the participants' interests and practicalities. The source material will consist mostly of multi-dimensional fluorescence-based microscopy images, but the principles learned are applicable to any type of image, and also other types of sample material can be worked on.

Modes of study: The course consists of interactive practical sessions in a computer room. The sessions include short lecture-type presentations, practical work and going through previous sessions' practical work together. Evaluation is based on the practical exercises and participation during the sessions; there is no exam.

Course schedule 2020:

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| 1. Wednesday 29.1. 9-12 | 5. Wednesday 12.2. 9-12 | 9. Tuesday 25.2. 9-12 |
| 2. Friday 31.1. 9-12 | 6. Friday 14.2. 9-12 | 10. Friday 28.2. 9-12 |
| 3. Wednesday 5.2. 9-12 | 7. Tuesday 18.2. 9-12 | 11. Tuesday 3.3 9-12 |
| 4. Friday 7.2. 9-12 | 8. Friday 21.2. 9-12 | 12. Friday 6.3 12-15 |

(Approx. 8 of these sessions will be contact teaching, the rest are reserve sessions and sessions for independent work.)