Practical Information

Postgraduate Studies in Big Data & Analytics in Business and Management

Academic coordination

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Programme coordination

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2021-2022

Aim of the Programme

We are pleased to welcome you to the Postgraduate Studies in Big Data & Analytics in Business and Management.

This programme's general aim is to bridge the gap between technical concepts and business applications of big data and analytics techniques. On the one hand, the programme will provide participants with a thorough understanding of the key technical aspects of big data and analytics technologies. On the other hand, the programme focuses on business and management applications, substantiating how big data and analytics techniques can create business value and providing insights on how to manage big data and analytics projects and teams. As such, this inherent interdisciplinary focus is the unique selling point of our programme.

The programme is founded on the lecturers' experience of advising and collaborating with industry and governmental organizations in Belgium and abroad. After successful completion of the programme, participants will be up-to-date with the latest developments related to big data and analytics. Furthermore, they will understand how to apply these techniques in practice and create value for their organization. The programme is relevant for participants from different sectors: business (marketing, finance, auditing, HR, CRM, consulting), government (fraud, open data, process optimization), healthcare (care flows, data-driven diagnostics), media (sentiment analysis, opinion mining, usability analytics), education (evidence-based performance management, learning analytics), energy & transport (smart data).

Schedule

Sessions are scheduled on Fridays from 1.30pm until 9.00pm on the following dates:

- 1 October 2021
- 8 October 2021
- 15 October 2021
- 22 October 2021
- 29 October 2021
- 19 November 2021
- 26 November 2021
- 3 December 2021
- 10 December 2021
- 17 December 2021

A more detailed schedule and speakers can be found below.

Date	Session 1 (13h30-15h00)	Session 2 (15h20-16h50)	Session 3 (17h10-18u40)	Session 4 (19h20-20h50)
1/10/2021	**Introduction of the programme** *Jochen De Weerdt*	**Data pre-processing** *Jochen De Weerdt*	**A hands on take on data preprocessing** *Johannes* De Smedt	*Networking dinner*
8/10/2021	**Descriptive analytics I** *Jochen De Weerdt*	**Descriptive analytics II** *Jochen De Weerdt*	**Predictive analytics: essential supervised learning techniques** *Seppe vanden Broucke*	**Evaluating analytical models** *Seppe vanden Broucke*
15/10/2021	**Advanced predictive analytics** *Seppe vanden Broucke*	**Deep learning** *Seppe vanden Broucke*	**Predictive analytics: applications & case studies** *Jessica Ruelens*	**Recommender systems** *Michael Reusens*
22/10/2021	**Visualisation** *Joris Klerkx*	**Interpretability** *Seppe vanden Broucke*	**Social network analytics** *Véronique Van Vlasselaer*	**Fraud analytics** *Tim Verdonck*
29/10/2021	**Prescriptive analytics I** *Wouter Verbeke*	**Prescriptive analytics II** *Wouter Verbeke*	**Text mining I** *Matthias Bogaert*	**Text mining II** *Matthias Bogaert*
5/11/2021	No sessions			
12/11/2021	No sessions			
19/11/2021	**Data management** *Monique Snoeck*	**Data quality** *Monique Snoeck*	**Social media analytics** *Matthias Bogaert*	**Attribution modelling** *Johannes De Smedt*
26/11/2021	**Introduction to Big Data** *Wilfried Lemahieu*	**Big Data Architecture and Infrastructure** *Wilfried Lemahieu*	**Time series forecasting** *Johannes De Smedt*	**Geospatial analytics** *Kasper Van Lombeek*
3/12/2021	**Introduction to process analytics** *Jochen De Weerdt*	**Process analytics: process discovery** *Jochen De Weerdt*	**Process analytics: conformance checking, enhancement, link to data mining** *Seppe vanden Broucke*	**Decision analytics** *Jan Vanthienen*
10/12/2021	**IoT analytics** *Estefanía Serral*	**Data Science Technology and Tooling: Introduction and Big Data** *Seppe vanden Broucke*	**Data Science Technology and Tooling: Distributed Analytics** *Seppe vanden Broucke*	**ML Ops and Deployment** *Yoshi Coppens*
17/12/2021	**Privacy and Big Data** *David Stevens*	**Ethics and Big Data** *Nathalie Smuha*	**Summary, key pitfalls** *Seppe vanden Broucke*	*Closing dinner*

Orange = Essential ML/analytics sessions

Blue = Application-focussed sessions

Green = Process Analytics

Yellow = Big Data

Purple = Managerial aspects

Location – Leuven

1st Session – 1 October

AEtelier

Research Park of Haasrode, Interleuvenlaan 74, 3001 Heverlee

Route description

Accessibility

By car coming from Brussels or Liège

> Follow the E40 to the Expresweg Meerdaalboslaan / N25. Take exit 23a (Haasrode-Research) and follow direction Haasrode. On the Meerdaalboslaan, turn right at the second traffic lights to the Technologielaan. Then take the first right (Esperantolaan) and the next street on the left (Interleuvenlaan) to number 74 on your left. There is a spacious free parking available on the site.

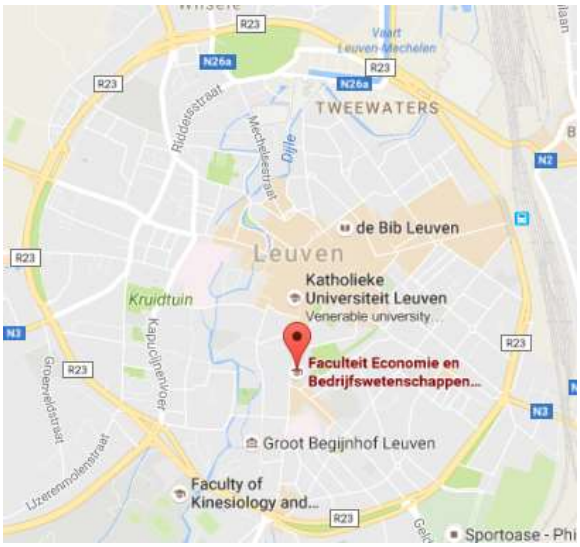
Coming by car from Leuven

> Follow the Tiensesteenweg to the Expresweg Meerdaalboslaan / N25. Turn into the Technologielaan at the lights. Then take the first right (Esperantolaan) and the next street on the left (Interleuvenlaan) to number 74 on your left. There is a spacious free parking available on the site.

With public transport

> Leuven station has good connections with the other Belgian stations. Numerous buses leave from the station to Haasrode.
>
> During the week you can take line 630 (Wijgmaal - Leuven - Haasrode) or line 4 (Herent - Leuven - Haasrode). On average there is a bus every 10 to 20 minutes. The bus stop where you get off is called Haasrode Philips, it is close to the site.

All the others session



Faculty of Economics and Business
Naamsestraat 69, 3000 Leuven

Lecture room

HOGM 00.85, located in Huis de Munter
(https://goo.gl/maps/Nja3NHJCncvNbaum7)

More info:
https://www.kuleuven.be/kulag/nl/lokaal/172-22-000085/onderwijs

Street entrance Naamsestraat 69

Access to Huis de Munter

COVID-19 Safety Precautions for Physical Sessions

Flemish higher education opts for a return to full-time face-to-face education ('green code'), in a normal one-on-one occupation of auditoriums and classrooms. We will of course continue to monitor developments closely and adapt to the measures in force at the time.

At this time, inside the building you always wear a mouth mask when you move in the building and when you sit and you can't preserve the distance of 1,5m. If you sit and you can preserve the distance of 1,5m, you can take of your mouth mask.

During the breaks, ventilation of the room is provided as much as possible.

Course Material

Course materials are distributed during course hours (print-outs) and made available in electronic format online. Please go to www.toledo.kuleuven.be/portal/. You will need to login with your student ID and password. On Toledo, you will find a community called Postgraduate Studies in Big Data and Analytics which contains a documents folder with the course material in electronic format.

DataCamp classroom with hands-on training of R and Python

For those participants who want to develop their coding skills with mainstream big data and data analytics tools, we have set up a DataCamp classroom (www.datacamp.com) with hands-on training for both R and Python. There is no obligation to follow these trainings. More information will be made available during the first session. Please note that in case you already registered on Datacamp in the past with the email address that you provided for the course, you will automatically get access to all content, without a notification email!

Note also that other tooling which is freely accessible as a KU Leuven-student will be shortly introduced in the first session (RapidMiner, Rattle, Azure ML Studio, KNIME, …).

Attendance

We expect participants to be present during all sessions. If you would be unable to make it, it is recommended to inform Lindsay Vandenameele, our programme coordinator, who can then ensure that course materials are being kept aside and handed over during the next session.

All sessions will also be streamed live and recorded. If you will not attend the session physically, but will follow via the livestream, please also inform us about this.

We start each session **on time**. We would also like to ask you to arrive on time, so that the sessions can start without disturbances of people entering late.

Please do not use your mobile phone during the lecture sessions. Please put these and other devices in silent mode. Take care to not leave valuables in the course room during breaks.

Announcements

Announcements regarding the sessions and the programme are communicated by e-mail. If there is a very urgent message, we will communicate via mobile phone. That is why it is important that we have the correct data; you can check it again in the information that will be included in the alumni booklet. During the first session day, a sample of this booklet will be available so that you can send us any corrections you seem necessary.

Even after this course, we would like to inform you about interesting seminars/events taking place at the faculty or at the Postuniversitair Centrum. Therefore, we would like to ask you send us updated contact information, for instance when you move or in case you use a work-related email address and you would change jobs.

Evaluation

No written exam is organized. Instead, participants are required to develop an individual dissertation and give a presentation about a case study performed in his/her organization, relating to at least one of the topics discussed during the programme.

The case study should deal with the application of big data and analytics techniques in the context of a case within the organization. Participants will be advised by one of the lecturers.

Regulations

- The dissertation is made individually. Participants should at least attend 6 out of 8 session days before being allowed to produce a dissertation.
- The dissertation should be anywhere between 5.000 and 15.000 words (10-30 pages). A template is available, but is not mandatory.
- The dissertation should describe a case study or proof-of-concept on the application of big data and analytics techniques in the context of a well-defined business problem.
- Working with actual data or descriptions on striving to collect necessary data is important. Managerial problems are accepted as topics for the dissertation, but the link to data should not be ignored, and a concrete business problem should be addressed.
- The dissertation should contain the following sections:
    - One-page executive summary
    - Problem description (business and technical)
    - Methodology and results
    - Conclusion and recommendations
- Dissertations will be held completely confidential (also to other participants in the programme). If needed, a template non-disclosure agreement is available on Toledo. Please note that we are not required to have access to actual data of your company/organisation. You can report on your analysis in such a way that sensitive details are not explicitly mentioned.
- In addition, there will be an oral presentation scheduled for each dissertation. The presentation should take at most 15 minutes with 10 minutes of questions.

Timeline

- **Wednesday January 12, 2022 (midnight):** Deadline for the one-pager (template available) describing your dissertation topic
- **April 24, 2022 (midnight):** Submission deadline of the dissertation document (template is available)
    - Submission is via email, as a pdf-file, sent to jochen.deweerdt@kuleuven.be
- **Week of April 25 and May 2, 2022:** Presentation
    - Presentation slots will be scheduled after the one-pager deadline (March 31)

Failing the deadline – retake submission

In case you cannot deliver the dissertation by the deadline, there will be a retake submission opportunity by the end of August 2022, with presentations to be scheduled in the first week

of September. This will constitute your final chance to submit. Further postponement will require a new enrolment as student of KU Leuven for next academic year and will be associated with a new enrolment fee of €550.

Advisor

One of the LIRIS teaching staff members will be appointed as an advisor of your project. You can indicate your preference in the one-pager document. If you have no preference, we will assign an advisor for you. Advisors advise, they will not do the work for you! Given our busy agendas, communication over email is always preferred.

Confidentiality

We don't need to obtain your data, code, or other artefacts that you produce while executing the project for the dissertation. We can sign a confidentiality form covering the dissertation document, presentation, and any discussions on the matter. You can find it here.

Presentation

In addition to the dissertation document, you will also need to present your dissertation and answer questions. We expect a 10-15 minute presentation which will be followed by a question round from our side. Presentations might be organized remotely or in person. For in person presentations, you will need to bring your own presentation device (laptop) and connect to a beamer using HDMI or VGA. We don't need printouts of your slides. We also advice to refrain from adding slides that were part of the course material.

Postgraduate Certificate

After successful completion of the dissertation (paper + presentation), the participant will receive the postgraduate certificate "Postgraduate Studies in Big Data & Analytics in Business and Management", awarded by the KU Leuven and signed by the Rector. The official graduation ceremony will be held in the second half of September 2022.

Feedback

After every session day, an online questionnaire will be available to provide us with your feedback. Please feel free to communicate any concerns regarding course content or course organization through the questionnaire, or by contacting one of the coordinators directly.

Eligibility for "Vlaams Opleidingsverlof" in Flanders and "Betaald Educatief Verlof" for the Brussels Region

The programme is eligible for "Vlaams Opleidingsverlof" and "Betaald Educatief Verlof". In case you wish to apply for this, please contact Mrs. Lindsay Vandenameele for details on the practical arrangements. Note that there are special regulations regarding minimum attendance.

Student Card and Number

Normally you have already arranged this and you have already received your student card by post. If you have not done this yet, we may ask you to rectify this as soon as possible.

The letter you received with your student card will state which study program you are registered for. The most important information on this letter is your student number * (r or s number), which you will find in the reference. It is best to memorize your student number because you need it for questions to KU Leuven services, as a login for the digital learning environment, use of WiFi,…

You activate your KU Leuven account with the scratch card you received or the automated e-mail you received to activate your account. This gives you access to the electronic learning environment Toledo, your KU Leuven email address and the campus WiFi network.

You can find instructions for activation via http://account.kuleuven.be. After activation, you log in to all applications with your r or s number (student number) and your self-chosen password.

Use of Imagery

Throughout the programme, it is possible that photo and video material is made to visualize the atmosphere of the training with a view to further promotion of this course. We handle this footage with care. It is mainly intended to be included in the communication on our website and social media about this programme. If we are not allowed to use images of you in this context, please inform us explicitly by sending an email to Lindsay Vandenameele. During a photo or video moment, a practical appointment can also be made to stay out of the picture.

LIRIS Research Group

This programme is hosted by the LIRIS research group of KU Leuven. More information about us can be found here: https://feb.kuleuven.be/research/decision-sciences-and-information-management/liris

Staff

Academic coordinators

- Prof. Dr. Jochen De Weerdt (jochen.deweerdt@kuleuven.be)
- Prof. Dr. Seppe vanden Broucke (seppe.vandenbroucke@kuleuven.be)

Programme coordinator

- Lindsay Vandenameele (lindsay.vandenameele@kuleuven.be)

Co-lecturers & guest speakers

- Prof. Dr. Jan Vanthienen (https://feb.kuleuven.be/Jan.Vanthienen)
- Prof. Dr. Wilfried Lemahieu (https://feb.kuleuven.be/Wilfried.Lemahieu)
- Prof. Dr. Monique Snoeck (https://feb.kuleuven.be/Monique.Snoeck)
- Prof. Dr. Wouter Verbeke (https://www.kuleuven.be/wieiswie/en/person/00054694)
- Prof. Dr. Estefanía Serral (https://feb.kuleuven.be/Estefan%C3%ADa.SerralAsensio)
- Prof. Dr. Johannes De Smedt (https://www.kuleuven.be/wieiswie/nl/person/00092789)
- Prof. Dr. Tim Verdonck (https://www.kuleuven.be/wieiswie/en/person/00071962)

- Prof. Dr. Matthias Bogaert (https://telefoonboek.ugent.be/nl/people/802001858796)
- Ms. Jessica Ruelens (Cake)
- Dr. Michael Reusens (Statistiek Vlaanderen)
- Dr. Joris Klerkx (Ordina)
- Yoshi Coppens (Element61)
- Dr. Nathalie Smuha
- Mr. Kasper Van Lombeek (freelance, co-founder of Rockestate)
- Mr. David Stevens (GBA)
- Ms. Véronique Van Vlasselaer

POSTGRADUATE STUDIES IN BIG DATA & ANALYTICS IN BUSINESS AND MANAGEMENT

ACADEMIC COORDINATION:

PROF. DR. JOCHEN DE WEERDT: JOCHEN.DEWEERDT@KULEUVEN.BE

DR. SEPPE VANDEN BROUCKE: SEPPE.VANDENBROUCKE@KULEUVEN.BE

https://feb.kuleuven.be/permanente-vorming/bigdataanalytics

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