Module Manual
Business Analytics (MSc)

Last Updated: July 2021

This English translation is intended to allow international readers a better understanding. It is solely for information purposes and subject to change without notice. In case of discrepancies, only the German version applies and prevails.

Abbreviations:
h = hour(s)
ECTS = credits according to the European Credit Transfer System
tba: = to be announced

List of Contents

Business Analytics A 3
Business Analytics B 5
Business Administration A 7
Business Administration B 10
Economic Analysis 13
Business Models and Legal Framework of the Digital Economy 15
Quantitative Methods A 18
Quantitative Methods B 20
Analytics in Industry 4.0 23
Marketing Analytics 26
Supply Chain Analytics 29
Auditing and Risk Management 32
Project Module 35
Master's Thesis including Colloquium 37

Module number / code	Module 1
Module name	Business Analytics A
Semester	Semester 1 or 2
Duration of the module	1 semester
Type of module (compulsory, elective, etc.)	Core module
Course(s) (if applicable)	IT and Business Concepts of Business Analytics
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Jan Schemm
Lecturer(s)	Thomas Zeutschler (adjunct lecturer)
Language(s) of instruction	German and English
ECTS credits	12
Workload	300 h in total: approx. 90 h attendance, 210 h self-study
Credit hours per week	6
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 10.00% of the total ECTS Bachelor of 7 semesters: 13.33% of the total ECTS
Learning outcomes	Having successfully completed the module, students • can describe methods, procedures, techniques and framework conditions to work holistically on data-driven, analytical tasks and research questions and explain them giving examples; • are able to work on practical business cases by analysing data, i.e. systematically assessing if and how data can contribute to better problem solving; • can work competently on analytical projects: They know the fundamentals of data mining processes, machine learning algorithms and analytical systems and can apply these in the project; and • have gained practical experience in data analysis and can expand it independently in future projects or use cases.
Contents	• Introduction to business analytics • Project management in the context of analytics • Fundamentals of software development in the context of business analytics o Fundamentals of agile software development o Concepts and metrics of modern software development • Tools and technologies for software and application development • Data science and data management

	• Database and other data repository technologies • Cloud in the context of business analytics • Data and text analysis • Predictive analytics, simulation, machine learning • Data and decision modelling • Data visualisation • Data quality • Data protection • Industry- and function-specific applications, e.g. analytical CRM, web analytics and social mining, mobile system data analysis
Forms of teaching and learning	Seminar-like course including exercises, computer-aided individual and group work
Literature (compulsory / recommended)	BISE – Business & Information Systems Engineering (specialist journal) Decision Analytics (specialist journal) DuD – Datenschutz und Datensicherheit (specialist journal) HMD – Praxis der Wirtschaftsinformatik (specialist journal) IJBAN – International Journal of Business Analytics (specialist journal) IJBIR – International Journal of Business Intelligence Research (specialist journal) Konasani/Kadre (2015): Practical Business Analytics Using SAS. A Hands-on Guide Maisel/Cokins (2013): Predictive Business Analytics. Forward Looking Capabilities to Improve Business Performance Mohanty/Jagadeesh/Srivatsa (2013): Big Data Imperatives. Enterprise Big Data Warehouse, BI Implementations and Analytics Müller/Lenz (2013): Business Intelligence Provost/Fawcett (2013): Data science for business. What you need to know about data mining and data-analytic thinking Saxena/Srinivasan (2013): Business Analytics. A Practitioner's Guide **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Parts of the courses of this module take place in the IT laboratory.

Module number / code	Module 2
Module name	Business Analytics B
Semester	Semester 1 or 2
Duration	1 semester
Type of module (compulsory, elective, etc.)	Core module
Course(s) (if applicable)	Fields of Application and Case Studies in Business Analytics
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Jan Schemm
Lecturer(s)	Prof. Dr. Jan Schemm
Language(s) of instruction	German and English
ECTS credits	12
Workload	300 h in total: approx. 90 h attendance, 210 h self-study
Credit hours per week	6
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 10.00% of the total ECTS Bachelor of 7 semesters: 13.33% of the total ECTS
Learning outcomes	Having successfully completed the module, students • are able to design and implement analytical applications of varying complexities using analytical methods and suitable information technology; • can explain, plan and execute access to data and data preparation according to the requirements at hand, as well as the application of different analytical frameworks and of machine learning methods and data mining; • are able to evaluate solution approaches while considering the business objectives. They know forms of visualisation and presentation of data and results and can apply these; and • are able to apply modern data analysis tools and analytical programming languages such as Python to practical analytical problems and to review and evaluate solution approaches, having worked on case studies and sample tasks.

Contents	1. Introduction to the development of analytical applications
	• Fundamentals of analytical application development
	  ○ Environment and tools of software development
	  ○ Fundamentals of programming in Python
	• Data access and data processing
	  ○ Web scraping and APIs

	○ Databases and SQL ○ Text and regular expressions • Analysis and visualisation of data • Machine learning • Text mining • Network analysis 2. Case studies and example tasks for the implementation of practical analytical applications from different areas of business practice and business administration
Forms of teaching and learning	Seminar-like course including exercises, computer-aided individual and group work
Literature (compulsory / recommended)	Cady (2017): The Data Science Handbook Carter/Hurst (2019): Agile Machine Learning: Effective Machine Learning Inspired by the Agile Manifesto Géron (2019): Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques for Building Intelligent Systems McKinney (2017): Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython Provost/Fawcett (2013): Data science for business. What you need to know about data mining and data-analytic thinking. 1st ed. Sebastopol, CA: O'Reilly Media Shmueli/Bruce/Gedecker/Patel (2020): Data mining for business analytics. Concepts, techniques and applications in Python VanderPlas (2016): Python Data Science Handbook: Essential Tools for working with Data Cell (2016): Python Programming: An Introduction to Computer Science **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination, usually written assignment with oral presentation (50%) and 90-minute written examination (50%)
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Parts of the courses of this module take place in the IT laboratory.

Module number / code	Module 3
Module name	Business Administration A
Semester	Semester 1 or 2
Duration	1 semester
Type of module (compulsory, elective, etc.)	Core module
Course(s) (if applicable)	Data Analytics in Corporate Management Control
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Marcus Albrecht
Lecturer(s)	Prof. Dr. Marcus Albrecht Oliver Becker (adjunct lecturer)
Language(s) of instruction	German and English
ECTS credits	6
Workload	150 h in total: approx. 60 h attendance, 90 h self-study
Credit hours per week	4
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 5.00% of the total ECTS Bachelor of 7 semesters: 6.67% of the total ECTS
Learning outcomes	Having successfully completed the module, students • have learned how to use data analytics to generate value in the context of corporate management control; • are able to identify approaches to analytics use cases and design value-generating use cases; • are able to systematically design and successfully realise data analytics projects; • are able to analyse the requirements for data-based decision and control processes and to conceptualise these as information requirements; • are able to plan the IT infrastructure required to implement data analytics projects; • are able to allocate common data analytics algorithms to use cases in corporate management control; • are able to develop solution algorithms for use cases in corporate management control following the data analytics workflow; • are able to automate decision-making processes with the help of algorithms; and • are able to implement algorithms in operational business processes.

Contents	• Analytics use cases in corporate management control • Methods for developing analytics use cases • Design of data analytics projects using standard process models • Data analytics workflow and data analytics algorithms • Risks and cognitive challenges in analytics projects • Analytics change management • Information needs and data management in data analytics projects • IT infrastructure for data analytics projects
Forms of teaching and learning	Seminar-like course, exploratory teaching and learning
Literature (compulsory / recommended)	**Albrecht**, M. und **Schlüter**, T.: Erfolgsmodell Data Analytics, Berlin 2020 **Abbott**, D.: Applied Predictive Analytics – Principles and Techniques for the Professional Data Analyst, Indianapolis (Indiana) 2014 **Bleicher**, K.: Das Konzept integriertes Management, Frankfurt am Main 2017 **Davenport**, T.H.: Big Data @ Work, München 2014 **Fischer**, T. M. u. a.: Controlling, 2. Auflage, Stuttgart 2015 **Malik**, F.: Strategie des Managements komplexer Systeme, 11. Auflage, Bern u. a. 2015 **Provost**, F. und **Fawcett**, T.: Data Science for Business – What You Need to Know About Data Mining and Data-Analytic Thinking, Sebastopol, 2013 **Russell**, S. und **Norvig**, P.: Künstliche Intelligenz – Ein moderner Ansatz, 3. Auflage, Hallbergmoos 2012 **Seiter**, M.: Business Analytics – Effektive Nutzung fortschrittlicher Algorithmen in der Unternehmenssteuerung, 2. Auflage, München 2017 **Troßmann**, E.: Controlling als Führungsfunktion, 2. Auflage, München 2018 IJBAN – International Journal of Business Analytics (specialist journal) **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Written assignment including presentation (50%) and 60-minute written examination (50%)
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules

	Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Guest lectures from practice

Module number / code	Module 4
Module name	Business Administration B
Semester	Semester 1 or 2
Duration	1 semester
Type of module (compulsory, elective, etc.)	Core module
Course(s) (if applicable)	Value-Oriented Corporate Governance Corporate Social Responsibility and Non-Financial Reporting
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Dirk Jödicke
Lecturer(s)	Prof. Dr. Dirk Jödicke Prof. Dr. Christian Kölle
Language(s) of instruction	German and English
ECTS credits	6
Workload	150 h in total: approx. 60 h attendance, 90 h self-study
Credit hours per week	4
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 5.00% of the total ECTS Bachelor of 7 semesters: 6.67% of the total ECTS
Learning outcomes	Having successfully completed the module, students • can apply and critically evaluate traditional key figures and key figure systems as well as various methods of company valuation; • are able to present the different concepts and operational starting points of value-oriented business management in a differentiated manner; • are able to theoretically derive and practically apply value-oriented key performance indicators (residual profit concepts) and also show their limitations; • are able to present and evaluate the opportunities and risks of alternative pay systems for implementing value-oriented strategies; • can demonstrate the importance of sustainability concepts for companies, in particular corporate social responsibility (CSR); • are able to name relevant key EU legislature and put it into the context of the EU's action plan; • can name framework concepts for CSR reporting (e.g. UN Global Compact, GRI Standards) and evaluate the adequacy of their application in the context of non-financial reporting by businesses; and

	• are able to analyse non-financial reports by businesses and to critically acknowledge their limitations and problem areas.
Contents	• Shareholder value as a possible target in corporate governance • Traditional key figures and key figure systems • Application of management tools • Business valuation methods • Value-oriented key figures • Opportunities and risks in value-oriented remuneration systems • Development of the importance of CSR for businesses • Legal requirements for non-financial reporting in the EU and Germany • Framework concepts for measuring non-financial (CSR) performance (e.g. GRI Standards) • Audit of non-financial reporting • Approaches to measuring and evaluating CSR performance (CSR ratings)
Forms of teaching and learning	Seminar-like course including exercises
Literature (compulsory / recommended)	Coenenberg, A./Salfeld, R./Schultze, W. (2015): Wertorientierte Unternehmensführung, 3. Aufl. Dahm, M./Brückner, A. (2014): Operational Excellence mittels Transformation Management. Dillerup, R./Stoi, R. (2016): Unternehmensführung, 5. Aufl. Drukarzyk, J./Schüler, A. (2016): Unternehmensbewertung, 7. Aufl. Kaplan, R./Norton, D. (1997): Balanced Scorecard: Strategien erfolgreich umsetzen. Kaplan, R./Norton, D. (2001): Die Strategiefokussierte Organisation. Koch, S. (2015): Einführung in das Management von Geschäftsprozessen, Six Sigma, Kaizen und TQM, 2. Aufl. Meyer, C. (2007): Working Capital und Unternehmenswert. Perridon, L. et al. (2017): Finanzwirtschaft der Unternehmung, 17. Aufl. Rappaport, A. (1999): Shareholder Value, 2. Aufl. Simon, H./Fassnacht, M. (2016): Preismanagement, Strategie-Analyse-Entscheidung-Umsetzung, 4. Aufl. Stewart, G. B. (1991): The Quest for Value. Lanfermann, Georg (2019): EU-Aktionsplan zu Sustainable Finance: Wie weit ist der europäische Gesetzgeber mit der Umsetzung?, Betriebs-Berater, S. 2219 ff. Kajüter, Peter/ Wirth, Maximilian (2018): Praxis der nichtfinanziellen Berichterstattung nach dem CSR-RUG - Empirische Befunde für die DAX-Unternehmen, in: Der Betrieb, S. 1605 ff GRI -Standards, https://www.globalreporting.org/standards/gri-standards-translations/gri-standards-german-translations-download-center/

	Behncke, Nicolette/ Wulf, Inge (2019): Erste Berichts- und Prüfungssaison der nichtfinanziellen Berichterstattung – Eine empirische Analyse der DAX160-Unternehmen für das Geschäftsjahr 2017, in: KoR, S. 21 ff. Marten, Kai-Uwe/ Weigt, Serafin G. K. (2018), Die Prüfung nichtfinanzieller Informationen - Herausforderungen für den Abschlussprüfer vor dem Hintergrund der Stärkung nichtfinanzieller Berichtspflichten, in: KoR, S. 454 ff Lehmann, Kai (2019): Nachhaltig? Ja...Nein...Vielleicht! Zur mangelnden Vergleichbarkeit von ESG-Ratings, Studie des Flossbach von Storch Research Institute vom 28.11.2019. **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination, usually a 60-minute written examination (50%) as well as written assignment and presentation in small groups (50%)
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Case study analysis

Module number / code	Module 5
Module name	Economic Analysis
Semester	Semester 1 or 2
Duration	1 semester
Type of module (compulsory, elective, etc.)	Core module
Course(s) (if applicable)	Advanced Managerial Economics
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Philipp Freitag
Lecturer(s)	Prof. Dr. Philipp Freitag
Language(s) of instruction	German and English
ECTS credits	6
Workload	150 h in total: approx. 60 h attendance, 90 h self-study
Credit hours per week	4
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 5.00% of the total ECTS Bachelor of 7 semesters: 6.67% of the total ECTS
Learning outcomes	Having successfully completed the module, students • are able to identify and classify consumer behaviour as well as different market forms and relate them both to real-world issues; • can evaluate the effects of market power from an economic point of view and apply and evaluate different models of pricing strategies; • are able to analyse more complex microeconomic phenomena in two-sided markets and apply these to decision-making in businesses; • can describe and analyse key issues of competition policy and regulation; • can explain and elaborate on fundamental game-theoretic concepts and relate them to real economic situations; and • are able to identify economic implications of incomplete information and develop solution approaches.
Contents	• Market and competition (e.g. market power, pricing strategies, two-sided markets, economic policy) • Fundamental game theory methods (e.g. Nash equilibrium, auctions)

	• New institutional economics (e.g. principal-agent problem, adverse selection)
Forms of teaching and learning	Seminar-like course including exercises
Literature (compulsory / recommended)	Allen/Weigelt/Doherty/Mansfield (2013): Managerial Economics. Theory, Application and Cases, 8. Aufl. Belleflamme/Peitz (2015): Industrial Organization. Markets and Strategies, 2. Aufl. Frank/Cartwright (2013): Microeconomics and Behaviour Freitag (2017): Digitale Ökonomie: Zweiseitige Märkte, in: WISU 6/2017 Goolsbee/Levitt/Syverson (2014): Mikroökonomik Hirschey/Bentzen/Scheibye (2019): Managerial Economics, 15. Aufl. Nechyba (2018): Intermediate Microeconomics. An Intuitive Approach with Calculus Riechmann (2014): Spieltheorie, 4. Aufl. Varian (2016): Grundzüge der Mikroökonomik, 9. Aufl. AEJ – American Economic Journal: Applied Economics (specialist journal) **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	90-minute written examination
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Training elements with elaboration of more in-depth theoretical aspects by the students

Module number / code	Module 6
Module name	Business Models and Legal Framework of the Digital Economy
Semester	Semester 1 or 2
Duration	1 semester
Type of module (compulsory, elective, etc.)	Core module
Course(s) (if applicable)	Business Model Development and Entrepreneurship Compliance and Data Protection Law
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Christian Schwarz
Lecturer(s)	Prof. Dr. Christian Schwarz Dr. Markus Lang (adjunct lecturer)
Language(s) of instruction	German and English
ECTS credits	6
Workload	150 h in total: approx. 60 h attendance, 90 h self-study
Credit hours per week	4
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 5.00% of the total ECTS Bachelor of 7 semesters: 6.67% of the total ECTS
Learning outcomes	Having successfully completed the module, students • have learned how to develop new innovative business models and digitalise existing business models. In particular, they are able to take compliance aspects and data protection requirements into account; • are able to identify and evaluate opportunities and risks of industry-specific business models against the background of the digital transformation; • are able to develop new digital business models conceptually and systematically; • are able to plan agile forms of organisation (‘entrepreneurship’ in corporations); • are able to conceptualise and implement compliance requirements for specific business models; and • are able to evaluate (digital) business models with regard to legal data protection issues and to therefrom develop solutions that comply with data protection law.
Contents	• Further development and digitalisation of existing business models

	• New forms of agile business organisation (digital labs, incubators, etc.) • Compliance as a focus of businesses • Fundamentals of compliance management systems • Legal data protection framework for business analytics (national and international) • Data protection requirements and possibilities for the analysis and other processing of personal data (incl. automated individual decisions/profiling) • Technology assessment: corporate and societal change, social responsibility • Sustainable and responsible investment (SRI)
Forms of teaching and learning	Seminar-like course including exercises and case studies
Literature (compulsory / recommended)	*Business model development and entrepreneurship* Bland/Osterwalder (2019): Testing Business Ideas, Wiley Lewrick/Link (2018): The Design Thinking Playbook: Mindful Digital Transformation of Teams, Products, Services, Businesses and Ecosystem, Wiley Osterwalder/Pigneur (2011): Business Model Generation: Ein Handbuch für Visionäre, Spielveränderer und Herausforderer, Wiley Osterwalder/Pigneur/Bernada/Smith (2014): Value Proposition Design: How to Create Products and Services Customers Want, Wiley Lewrick/Link (2018): The Design Thinking Playbook: Mindful Digital Transformation of Teams, Products, Services, Businesses and Ecosystem, Wiley *Legal Framework* Behringer (2018): Compliance kompakt: Best Practice im Compliance Management, S. 29–52 Bundesbeauftragter für Datenschutz und Informationsfreiheit (2019): Datenschutz-Grundverordnung – Bundesdatenschutzgesetz – Texte und Erläuterung (Info 1) Caldarola/Schrey (2019): Big Data und Recht: Einführung in die Praxis Heilmann/Liegl (2013): Big Data und Datenschutz. Der Umgang der Deutschen mit persönlichen Daten und die Konsequenzen für den Einsatz von Big-Data-Analysen Kühling/Klar/Sackmann (2018): Datenschutzrecht ZD – Zeitschrift für Datenschutz (specialist journal)
Type of examination / requirements for award of credit	Written assignment including presentation (50%) and 60-minute written examination (50%)
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules

	Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Guest lectures from practice and/or case studies

Module number / code	Module 7
Module name	Quantitative Methods A
Semester	Semester 1 or 2
Duration	1 semester
Type of module (compulsory, elective, etc.)	Compulsory (support module)
Course(s) (if applicable)	Financial Modelling
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Christian Schwarz
Lecturer(s)	Prof. Dr. Horst Peters Prof. Dr. Christian Schwarz
Language(s) of instruction	German and English
ECTS credits	6
Workload	150 h in total: approx. 60 h attendance, 90 h self-study
Credit hours per week	4
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 5.00% of the total ECTS Bachelor of 7 semesters: 6.67% of the total ECTS
Learning outcomes	Having successfully completed the module, students • can design financial models in a business context with the help of suitable software and interpret their informative value. This includes the selection, analysis, customisation and extension of models as well as data-based model estimation; • have expanded and intensified their knowledge of mathematical and statistical procedures, which they can use to quantitatively analyse and model decision situations and conclude and evaluate recommended actions; • know the applicability of different mathematical and statistical procedures and can evaluate the limitations of their informative value; and • are able to analyse, evaluate and manage entrepreneurial and especially financial risks based on different modelling approaches.
Contents	• Theory of decision-making in business studies • Data-based financial models • Portfolio modelling and asset pricing models • Stochastic risk models

	• Estimation techniques • Parametric simulation models • Practical implementation and application of models in statistical tools as well as spreadsheet programmes, e.g. in R and Excel
Forms of teaching and learning	Seminar-like course including exercises
Literature (compulsory / recommended)	Albrecht/Huggenberger (2015): Finanzrisikomanagement. Methoden zur Messung, Analyse und Steuerung finanzieller Risiken Ang (2015): Analyzing Financial Data and Implementing Financial Models Using R, 1. Aufl. Bamberg/Coenenberg/Krapp (2019): Betriebswirtschaftliche Entscheidungslehre, 16. Aufl. Bösch (2014): Derivate verstehen, anwenden und bewerten, 3. Aufl. Gleißner (2016): Grundlagen des Risikomanagements im Unternehmen. Mit besseren Informationen zu fundierten Entscheidungen, 3. Aufl. Hull (2016): Risikomanagement. Banken, Versicherungen und andere Finanzinstitutionen, 4. Aufl. Hull (2019): Optionen, Futures und andere Derivate, 10. Aufl. JFQA – Journal of Financial and Quantitative Analysis (specialist journal) MMOR – Mathematical Methods of Operations Research (specialist journal) ORS – OR Spectrum (specialist journal) Quantitative Finance (specialist journal) **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Guest lectures from practice and/or case studies

Module number / code	Module 8
Module name	Quantitative Methods B
Semester	Semester 1 or 2
Duration	1 semester
Type of module (compulsory, elective, etc.)	Compulsory (support module)
Course(s) (if applicable)	Econometrics and Empirical Research Methods
Number of offers	Once per academic year
Person(s) responsible for the module	Prof. Dr. Christian Schwarz
Lecturer(s)	Prof. Dr. Christian Schwarz
Language(s) of instruction	German and English
ECTS credits	6
Workload	150 h in total: approx. 60 h attendance, 90 h self-study
Credit hours per week	4
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 5.00% of the total ECTS Bachelor of 7 semesters: 6.67% of the total ECTS
Learning outcomes	Having successfully completed the module, students • are able to apply statistical methods and, in particular, econometric methods in a reflective manner; • are able to identify and strategically collect real-world data for specific business issues; • are able to analyse this data using statistical tools such as R, SPSS and Excel; • are able to evaluate the results; and • are able to critically evaluate their own work against the background of empirical research; • know multivariate methods of exploratory data analysis (e.g. principal component analysis, cluster analysis); • know methods of confirmatory data analysis (e.g. regression analysis, discriminant analysis); • know probability models (probit and logit model); and • know newer methods of artificial intelligence (random forests, artificial neural networks) and their application requirements and possibilities; and

	• can practically apply their knowledge using tools such as R, Excel and SPSS and use, expand and interpret it for research and management purposes.
Contents	• Multivariate linear regression (application requirements, calculation, interpretation) • Dealing with violations of basic regression assumptions (e.g. heteroscedasticity, autocorrelation and multicollinearity) • Exploratory methods of data analysis (e.g. principal component analysis, cluster analysis such as *k*-means, hierarchical clustering, latent class) • Confirmatory procedures in data analysis (e.g. regression models, discriminant analysis) • Probability models (e.g. probit and logit model) • Newer methods of artificial intelligence (e.g. random forests and artificial neural networks)
Forms of teaching and learning	Seminar-like course including exercises
Literature (compulsory / recommended)	Backhaus/Erichson/Plinke/Weiber (2016): Multivariate Analyseverfahren, 14. Aufl. Backhaus/Erichson/Weiber (2015): Fortgeschrittene Multivariate Analyseverfahren, 3. Aufl. Berekoven/Eckert/Ellenrieder (2009): Marktforschung, 12. Aufl. Briand/Hill (2011): Using Excel for Principles of Econometrics, 4. Aufl. Friedman/Tibshirani/Hastie (2017), The Elements of Statistical Learning: Data Mining, Inference, and Prediction, 9. Aufl. Groves et al. (2009): Survey Methodology, 2. Aufl. Gujarati (2015): Econometrics by example, 2. Aufl. Härdle/Simar (2011): Applied Multivariate Statistical Analysis Hill/Griffiths/Lim (2018): Principles of Econometrics, 5. Aufl. Hosmer/Lemeshow (2013). Applied Logistic Regression, 3. Aufl. James/Witten/Hastie/Tibshirani (2017), An Introduction to Statistical Learning with Applications in R, 7. Aufl. v. Auer (2016): Ökonometrie. Eine Einführung, 7. Aufl. **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination
Prerequisites	No specific prerequisites
Allocation to syllabus	Basic module within the master's programme which builds the foundation for the specialisation modules

	Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Guest lectures from practice and/or case studies

Module number / code	Module 9
Module name	Analytics in Industry 4.0
Semester	Semester 3 or 4
Duration	1 semester
Type of module (compulsory, elective, etc.)	Specialisation module
Course(s) (if applicable)	Analytics in Industry 4.0
Number of offers	Generally once per academic year
Person(s) responsible for the module	Prof. Dr. Jan Schemm
Lecturer(s)	Thomas Zeutschler (adjunct lecturer)
Language(s) of instruction	German and English
ECTS credits	9
Workload	225 h in total: approx. 90 h attendance, 135 h self-study
Credit hours per week	6
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 7.50% of the total ECTS Bachelor of 7 semesters: 10.00% of the total ECTS
Learning outcomes	Having successfully completed the Analytics in Industry 4.0 specialisation module, students • are able to analyse and evaluate the theory and application of advanced analytical methods (ML, AI) for the digitalisation of economic and, in particular, industrial and technical processes; • understand cyber-physical systems and processes as well as their application to optimise and automate technical and industrial processes and can define and implement these; • are able to classify, evaluate and develop approaches and methods for integrating consumers, customers and business partners into digitalised business and value creation processes as well as for transforming non-digital into digital business models; • are qualified to apply and develop sophisticated analytical use cases, case studies and applications from Industry 4.0 through using modern methods, tools and programming languages; • are familiar with and can apply relevant research methods and strategies that specifically strengthen their research competences and expand their skills required for doctoral studies; and • have also expanded and trained their leadership, analysis, communication and presentation skills by working on

	application-oriented questions and case studies according to their individual inclinations and interests.
Contents	Introduction • Fundamentals of production economics and industrial enterprises • Cyber-physical production systems (CPPS) • IT infrastructures and IT security of digitalised processes • Standardisation efforts and reference architectures in the context of Industry 4.0 Data processing • Data types and formats in the context of Industry 4.0 • Technologies and methods for real-time data collection • Use of databases and cloud technologies for data storage and analysis Design and implementation of analytical systems • Fundamentals and systematics of the development of analytical systems using Python, R and other languages • Methods and tools of modern software development • Methods and tools for advanced analytics programming Industry 4.0 case studies • Work on analytical use cases of varying complexity, from problem analysis to systems engineering implementation of concrete solutions and/or systems
Forms of teaching and learning	Seminar-like course including exercises
Literature (compulsory / recommended)	Adam (2013): Produktions-Management, 9. Aufl. Bauernhansl (2014): Industrie 4.0 in Produktion, Automatisierung und Logistik Deuse u.a. (2014): Gestaltung von Produktionssystemen im Kontext von Industrie 4.0 Kaufmann (2015): Geschäftsmodelle in Industrie 4.0 und dem Internet der Dinge Müller (2015): Manufacturing Execution Systeme (MES): Status Quo und Ausblick in Richtung Industrie 4.0 Scheer (2013): Industrie 4.0 Wagner (2018): Industrie 4.0 für die Praxis: Mit realen Fallbeispielen aus mittelständischen Unternehmen Marwedel (2017): Embedded System Design: Embedded Systems Foundations of Cyber-Physical Systems, and the Internet of Things Frochte (2019): Maschinelles Lernen: Grundlagen und Algorithmen in Python **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination
Prerequisites	No specific prerequisites

Allocation to syllabus	Builds on knowledge from the core and support modules and applies it in an industry-oriented manner. Gives orientation for the master's thesis. Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Integration of practical lectures and field trips (if applicable)

Module number / code	Module 10
Module name	Marketing Analytics
Semester	Semester 3 or 4
Duration	1 semester
Type of module (compulsory, elective, etc.)	Specialisation module
Course(s) (if applicable)	Digital Marketing Marketing Controlling Digital Marketing Case Studies
Number of offers	Generally once per academic year
Person(s) responsible for the module	Prof. Dr. Jan Schemm
Lecturer(s)	Prof. Dr. Jan Schemm Dr. Bastian Dinter (adjunct lecturer) Dr. Niklas Teichmann (adjunct lecturer)
Language(s) of instruction	German and English
ECTS credits	9
Workload	225 h in total: approx. 90 h attendance, 135 h self-study
Credit hours per week	6
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 7.50% of the total ECTS Bachelor of 7 semesters: 10.00% of the total ECTS
Learning outcomes	Having successfully completed the module, students • are able to describe the increasing importance of data management and analytics in the course of digital transformation to solve business management tasks in marketing and to demonstrate the increasing importance using case studies; • have learned to analyse practical marketing-related tasks in a structured process – from problem analysis to data understanding, data preparation and modelling to the evaluation and presentation of results – as well as to assess and develop solutions, through work on use cases and analysis scenarios; • can understand and use common data analysis tools and evaluate which marketing tasks these tools are suitable for, having worked on practical cases and theoretical analyses; • have learned to realise and develop their own analysis projects in the context of marketing through independent documentation

	of the task solutions in the form of codified, reproduceable and reusable analysis processes ('solutions'); and • are familiar with and can apply relevant research methods and strategies that specifically strengthen their research competences and expand their skills required for doctoral studies.
Contents	• Digitalisation of marketing • Data management and analytics as the foundation of market success • Development of analysis-oriented solutions in Python • Selected practical cases and analysis scenarios in concrete marketing-related problems, such as o Brand positioning o Customer analytics ▪ Customer scoring and profiling ▪ Customer segmentation ▪ Targeting and scoring o Prognosis models o New product development and launch o Pricing o Referral systems o Digital Marketing ▪ Web analytics ▪ A/B testing ▪ Social listening and text analysis ▪ Network analyses ▪ Viral marketing
Forms of teaching and learning	Participative, seminar-like course including typical examples and case studies, individual and group research, exercises as well as presentations
Literature (compulsory / recommended)	Aggarwal (2016): Recommender systems. The textbook. Chapman / McDonnell Feit (2019): R for marketing research and analytics. 2nd ed. Grigsby (2018): Marketing Analytics. A Practical Guide to Improving Consumer Insights Using Data Techniques. 2nd ed. Hassler (2017): Digital und Web Analytics. Metriken auswerten, Besucherverhalten verstehen, Website optimieren. Kohavi / Tang / Xu (2020): Trustworthy online controlled experiments. A practical guide to A/B testing. Lilien / Rangaswamy / Bruyn (2017): Principles of marketing engineering and analytics. 3rd ed. Neckel / Knobloch (2015): Customer Relationship Analytics. Praktische Anwendung des Data Mining im CRM. 2., überarbeitete und erweiterte Auflage. Venkatesan / Farris / Wilcox (2014): Cutting-edge marketing analytics. Real world cases and data sets for hands on learning.

	Winston (2014): Marketing analytics. Data-driven techniques with Microsoft® Excel®. Applied Marketing Analytics (specialist journal) International Journal of Research in Marketing (specialist journal) Journal of Marketing (specialist journal) Journal of Marketing Analytics (specialist journal) **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination, usually written assignment with oral presentation (50%) and 90-minute written examination (50%)
Prerequisites	No specific prerequisites
Allocation to syllabus	Builds on knowledge from the core and support modules and applies it in an industry-oriented manner. Gives orientation for the master's thesis. Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Guest lectures from practice

Module number / code	Module 11
Module name	Supply Chain Analytics
Semester	Semester 3 or 4
Duration	1 semester
Type of module (compulsory, elective, etc.)	Specialisation module
Course(s) (if applicable)	Supply Chain Design Supply Chain Planning and Controlling Simulation of a Supply Chain
Number of offers	Generally once per academic year
Person(s) responsible for the module	Prof. Dr. Peter Scheideler
Lecturer(s)	Prof. Dr. Peter Scheideler
Language(s) of instruction	German and English
ECTS credits	9
Workload	225 h in total: approx. 90 h attendance, 135 h self-study
Credit hours per week	6
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 7.50% of the total ECTS Bachelor of 7 semesters: 10.00% of the total ECTS
Learning outcomes	Having successfully completed the module, students • understand supply chain management as a concept which integrates different intra- and inter-institutional fields; • are able to understand supply chain management as a process-oriented approach and a means of coordination; • are able to shape supply chain networks, develop and apply planning models and optimise the supply chain. In this context, the module focusses especially on collaboration concepts (interlinked thinking, cooperation) for the supply chain participants (suppliers, original equipment manufacturers (OEMs), logistics providers, traders etc.); • understand the interrelation of the respective supply chain variables and can determine these optimally through using a simulation. In the view of the current discourse on sustainable management and the reduction of CO_2 emissions, impulses are given to explore which contributions the supply chain can make to the reduction of harmful emissions; • are familiar with and can apply relevant research methods and strategies that specifically strengthen their research

	competences and expand their skills required for doctoral studies; and • have also expanded and trained their leadership, analysis, communication and presentation skills by work on application-oriented questions and case studies according to their individual inclinations and interests.
Contents	• Transport systems and processes and means of transport • Logistics cooperation and logistics networks • Network design • Process design and analysis (SCOR, value stream mapping) • Analysis of products and product range • Supplier management • Performance key figures and drivers • Demand and stock management • Warehouse management • Sustainability in the supply chain • Application of the simulation game 'The Fresh Connection'
Forms of teaching and learning	Seminar-like course including exercises and simulation
Literature (compulsory / recommended)	<u>Compulsory reading:</u> Chopra/Meindl (2015): Supply Chain Management – Strategy, Planning, and Operation, 6. Aufl. (Global Edition) Thonemann (2015): Operations Management – Konzepte, Methoden und Anwendungen, 3. Aufl. <u>Recommended literature:</u> Werner (2017): Supply Chain Management: Grundlagen, Strategien, Instrumente und Controlling Arndt (2017): Supply Chain Management, Optimierung logistischer Prozesse, 7. Aufl. **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination
Prerequisites	No specific prerequisites
Allocation to syllabus	The module builds on knowledge from the core and support modules and applies it in an industry-oriented manner. The module gives orientation for the master's thesis. Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	The module includes practical examples (business cases) for students to apply their acquired knowledge to practice. In addition, students have to improve the ROI of a supply chain in the online simulation game 'The

	Fresh Connection'. Guest lectures and field trips are realised whenever possible.

Module number / code	Module 12
Module name	Auditing and Risk Management
Semester	Semester 3 or 4
Duration	1 semester
Type of module (compulsory, elective, etc.)	Specialisation module
Course(s) (if applicable)	Auditing Risk Management
Number of offers	Generally once per academic year
Person(s) responsible for the module	Prof. Dr. Marcus Albrecht Prof. Dr. Christoph Voos
Lecturer(s)	Prof. Dr. Marcus Albrecht Prof. Dr. Christoph Voos
Language(s) of instruction	German
ECTS credits	9
Workload	225 h in total: approx. 90 h attendance, 135 h self-study
Credit hours per week	6
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 7.50% of the total ECTS Bachelor of 7 semesters: 10.00% of the total ECTS

Learning outcomes	Having successfully completed this specialisation module, students
	• have expanded their industry-specific as well as their technical and methodological expertise on scientific and practical aspects of information-based business administration from the following fields of application:
	  • (internal) auditing,
	  • fraud management and
	  • risk management;
	• have learned about the (legal) frameworks of risk management, fraud management and compliance (in different industries). Based on this, they can evaluate and improve the formal structure of risk management and compliance systems;
	• can understand and apply process models and analytical tools to analyse and influence the operational and forensic risk exposure of a business using suitable tools and adapted to the conditions at hand;
	• have gained knowledge on relevant research methods and strategies that specifically strengthen their research

	competences and expand their skills required for doctoral studies; and • have also expanded and trained their leadership, analysis, communication and presentation skills by working on application-oriented questions and case studies according to their individual inclinations and interests.
Contents	• Analytical auditing methods • Fraud protection, fraud triangle, fraud diamond • Preventive measures (organisation, internal control system (ICS), communication etc.) • Detective measures (forensic auditing, mass data analysis, whistle-blowing, compliance audits) • Reactive measures (emergency plan, special audits, e-discovery and computer forensics, asset tracing) • Forensic data backup and analyses • Overview of objectives, tasks and instruments in risk management • Types and effects of risks • Risk controlling and management as controlling tasks • Organisation of risk management systems • Methods and techniques for risk identification • Methods and techniques for risk assessment (especially value at risk (VaR)) • Strategies, instruments and techniques for risk mitigation • Development and implementation of early warning systems • Other topical subjects according to current developments in science and practice
Forms of teaching and learning	Seminar-like course including exercises Work on case studies and problems of current relevance as well as presentations
Literature (compulsory / recommended)	Basic literature: Behringer, Stefan (Hrsg.): Compliance für KMU, 2. Aufl., Berlin 2016. Boecker, Corinna: Accounting Fraud aufdecken und vorbeugen, Berlin 2010. Bungartz, Oliver: Handbuch Interne Kontrollsysteme (IKS), Berlin 2017. Deggendorfer Forum zur digitalen Datenanalyse e. V. (Hrsg.): Big Data – System und Prüfung, Berlin 2013. Deggendorfer Forum zur digitalen Datenanalyse e. V. (Hrsg.): Bilanzdelikte erkennen und vermeiden, Berlin 2007. Deggendorfer Forum zur digitalen Datenanalyse e. V. (Hrsg): Transparenz der digitalen Prüfung, Berlin 2014. Eller, Roland; Heinrich, Markus (u. a., Hrsg.): Kompaktwissen Risikomanagement, Wiesbaden 2010. Freidank, Carl-Christian; Müller, Stefan (u. a., Hrsg.): Controlling und Rechnungslegung. Aktuelle Entwicklungen in Wissenschaft und Praxis, Wiesbaden 2008.

	Gleißner, Werner; Romeike, Frank: Erfolgsfaktor Risiko-Management 3.0: Methoden, Beispiele, Checklisten – Praxishandbuch für Industrie und Handel, Berlin 2015. Hannemann, Ralf; Steinbrecher, Ida; Weigl, Thomas: Mindestanforderungen an das Risikomanagement (MaRisk), 5. Auflage, Wiesbaden 2019. Hlavica, Christian; Hülsberg, Frank (u. a., Hrsg.): Tax Fraud & Forensic Accounting: Umgang mit Wirtschaftskriminalität, 4. Aufl. Berlin 2016. Hofmann, Stefan: Handbuch Anti-Fraud-Management: Bilanzbetrug erkennen - vorbeugen – bekämpfen, Berlin 2008. Hull, John: Risikomanagement, 4. Auflage, München 2016. Klose, Bernd (Hrsg.): Asset Tracing & Recovery, Berlin 2009. Krommes, Werner: Handbuch Jahresabschlussprüfung: Ziele – Technik – Nachweise, 4. Aufl., Berlin 2016. Löhr, Albert; Burkatzki, Eckhard (Hrsg.): Wirtschaftskriminalität und Ethik Meyer, Jörg: Forensische Datenanalyse: Dolose Handlungen im Unternehmen erkennen und aufdecken, Berlin 2012. Oehler, Andreas; Unser, Matthias: Finanzwirtschaftliches Risikomanagement, Berlin u. a. 2002. Schierenbeck, Henner; Lister, Michael; Kirmße, Stefan: Ertragsorientiertes Bankmanagement, Band 2: Risikocontrolling und integrierte Rendite-Risiko-Steuerung, Auflage, Wiesbaden 2008. Wiedmann, Klaus-Peter; Heckemüller, Carsten: Ganzheitliches Corporate Finance Management, Wiesbaden 2003. **More literature according to announcements in the course.** **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Portfolio examination
Prerequisites	No specific prerequisites
Allocation to syllabus	The module builds on knowledge from the core and support modules and applies it in an industry-oriented manner. The module gives orientation for the master's thesis. Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	–

Module number / code	Module 13
Module name	Project Module
Semester	Semester 3
Duration	1 semester
Type of module (compulsory, elective, etc.)	Transferable skills module
Course(s) (if applicable)	Project Module
Number of offers	Once per semester
Person(s) responsible for the module	Prof. Dr. Philipp Freitag
Lecturer(s)	Prof. Dr. Philipp Freitag
Language(s) of instruction	German and English
ECTS credits	21
Workload	525 h in total: approx. 60 h attendance, 465 h self-study
Credit hours per week	4
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 17.50% of the total ECTS
Learning outcomes	Having successfully completed the module, students • are enabled to work academically on their own, having worked independently on a specific assignment in the area of business analytics; • have learned to contextualise their projects within the current research environment, gain new insights and to derive and present solution approaches and/or results applicable to practice applying academic methodology; • have acquired in-depth knowledge of the specialist subject they have worked on; and • have practised their project and time management skills thanks to the complexity and duration of the project work.
Forms of teaching and learning	Seminar and project work
Contents	• Familiarisation with a specific topic and work on a project-based task with practical relevance, taking into account academic quality requirements from the field of business analytics • Academic methodology • Project Management • Preparing and presenting project results

Literature (compulsory / recommended)	Oehlrich (2019): Wissenschaftliches Arbeiten und Schreiben. Schritt für Schritt zur Bachelor- und Master-Thesis in den Wirtschaftswissenschaften, 2. Aufl. Stöger (2019): Wirksames Projektmanagement. Mit Projekten zu Ergebnissen, 4. Aufl. Theisen (2017): Wissenschaftliches Arbeiten. Erfolgreich bei Bachelor- und Masterarbeit, 17. Aufl. Timinger (2015): Wiley-Schnellkurs Projektmanagement **Additional literature is recommended depending on the topic of the project.** **All books to be read in their latest editions.** **See updated lists of recommended literature in the course documents.**
Type of examination / requirements for award of credit	Project work and presentation
Prerequisites	No specific prerequisites
Allocation to syllabus	The module builds on knowledge from the core and support modules and applies it in an industry-oriented manner. The module gives orientation for the master's thesis. Use in other study programmes: The module is offered exclusively in the Business Analytics master's programme.
Special features (e.g. online courses, field trips in the industry, guest lectures)	Usually cooperation with businesses and possibly research institutions; course is partially held online

Module number / code	Modules 14 and 15
Module name	Master's Thesis including Colloquium
Semester	Semester 3 or 4
Duration	1 semester
Type of module (compulsory, elective, etc.)	Transferable skills module
Course(s) (if applicable)	tba
Number of offers	Once per semester
Person(s) responsible for the module	Study programme director
Lecturer(s)	Supervisor
Language(s) of instruction	German and English
ECTS credits	21
Workload	525 h in total
Credit hours per week	tba
Weighting of the grade in the overall grade (in per cent of ECTS)	Bachelor of 6 semesters: 17.50% of the total ECTS Bachelor of 7 semesters: 23.33% of the total ECTS
Learning outcomes	Having successfully completed the module, students • can independently work on a problem case in business analytics, e.g. in a business context. Applying academic methods, they are able to achieve new results; • have expanded and refined their specialist skills and academic methodology acquired during the bachelor's and master's programmes; • are able to assess, document and present their own work results; and • have acquired specialist expertise in the respective subject, which provides orientation for future career options through working on practical cases.
Forms of teaching and learning	tba
Contents	• Choosing an assignment within the field of study and compiling a written academic report on it • Presenting the content and results, and defence of the master's thesis in a colloquium

Literature (compulsory / recommended)	Oehlrich (2019): Wissenschaftliches Arbeiten und Schreiben. Schritt für Schritt zur Bachelor- und Master-Thesis in den Wirtschaftswissenschaften, 2. Aufl. Theisen (2017): Wissenschaftliches Arbeiten. Erfolgreich bei Bachelor- und Masterarbeit, 17. Aufl. **Additional literature depending on the chosen subject. All books to be read in their latest editions.**
Type of examination / requirements for award of credit	Written assignment and oral examination
Prerequisites	No specific prerequisites
Allocation to syllabus	The module builds on knowledge from the core and support modules and applies it in a practice- and industry-oriented manner.
Special features (e.g. online courses, field trips in the industry, guest lectures)	If possible, cooperation with businesses and research institutions