Аннотация

<table>
<tr><td>Название дисциплины</td><td colspan="3">Модели маркетинга (продвинутый уровень)</td></tr>
<tr><td>Образовательная программа</td><td colspan="3">38.04.02. Менеджмент
Магистерская программа «Менеджмент и аналитика для бизнеса»</td></tr>
<tr><td>Тип дисциплины</td><td colspan="3">По выбору</td></tr>
<tr><td>Требования к уровню знаний студентов, необходимых для освоения дисциплины (пререквизиты)</td><td colspan="3">▪ Статистические методы анализа
▪ Практическое машинное обучение</td></tr>
<tr><td>Объем з.е.</td><td colspan="3">3</td></tr>
<tr><td rowspan="2">Объем в часах</td><td>Аудиторная работа</td><td>Самостоятельная работа</td><td>Всего</td></tr>
<tr><td>48</td><td>66</td><td>114</td></tr>
<tr><td>Краткое описание курса</td><td colspan="3">Основное внимание в этом курсе уделяется количественным моделям, которые могут использоваться менеджерами для поддержки принятия маркетинговых решений. Помимо наличия концептуальных навыков, для современных менеджеров все более актуально осваивание методов моделирования принятия решений на основе данных, чтобы осуществлять стратегическое планирование, используя информацию из корпоративных информационных систем, а также из внешних источников данных. Этот курс учит, как применять эконометрические методы, методы машинного обучения и оптимизации для решения маркетинговых задач.</td></tr>
<tr><td>Образовательные результаты по дисциплине</td><td colspan="3">По завершении обучения по данному курсу студенты должны владеть следующими компетенциями:
▪ УК-5 Способен принимать управленческие решения и готов нести за них ответственность
▪ УК-6 Способен анализировать, верифицировать, оценивать полноту информации в ходе профессиональной деятельности, при необходимости восполнять и синтезировать недостающую информацию
▪ ПК-13 Способен планировать и осуществлять проекты и мероприятия, направленные на реализацию стратегий организации
▪ ПК-14 Способен разрабатывать программы организационного развития и обеспечивать их реализацию
▪ ПК-16 Способен находить и оценивать новые рыночные возможности, формировать и оценивать бизнес-идеи, разрабатывать бизнес-планы создания нового бизнеса
▪ ПК-18 Способен формировать проект консультационных работ в сфере менеджмента и управлять им</td></tr>
<tr><td>Краткое содержание дисциплины</td><td colspan="3">1. Оптимизационные модели в маркетинге
2. Продвинутые приемы работы в электронных таблицах Excel
3. Эконометрические методы анализа продаж
4. Регрессионный анализ качественных и панельных данных в маркетинге</td></tr>
</table>

	5. Работа с данными высокой размерности. Снижение размерности методом главных компонент. Методы машинного обучения в ситуациях высокой размерности данных
Образовательные технологии	▪ Компьютерный практикум ▪ Решение кейсов ▪ Data Camp
Формы контроля	Формы контроля: ▪ Эмпирические кейсы, решаемые в классе ▪ Регулярные интерактивные тесты в системе Kahoot ▪ Промежуточный тест в LMS, основанный на изученном материале и материале Data Camp ▪ Экзамен: финальный тест в LMS Формулы оценок: ▪ Итоговая оценка=0.25*Средняя оценка за решение эмпирических кейсов+0.25*Тест, основанный на изученном материале и материале Data Camp+0.25*Оценка за Kahoot+0.25*Экзамен
Литература	Основная: 1. Quirk T. J. Excel 2016 for Business Statistics. – Springer International Publishing Switzerland, 2016. The book is available through HSE's electronic resources (Springer Books) 2. Rossi, Peter E., Causal Inference in Marketing Applications (March 20, 2017). Available at SSRN: https://ssrn.com/abstract=3035502 or http://dx.doi.org/10.2139/ssrn.3035502 3. Leeflang, P. S., Wieringa, J. E., Bijmolt, T. H., & Pauwels, K. H. (2014). Modeling Markets: Analyzing Marketing Phenomena and Improving Marketing Decision Making. Springer. (https://proxylibrary.hse.ru:2176/book/10.1007/978-0-387-78213-3) 4. Leeflang, P. S., Wieringa, J. E., Bijmolt, T. H., & Pauwels, K. H. (Eds.). (2017). Advanced Methods for Modeling Markets. Springer International Publishing. (https://proxylibrary.hse.ru:2176/book/10.1007/978-3-319-53469-5)
Преподаватель	к.э.н., доцент департамента менеджмента Антипов Евгений Александрович

Course Syllabus

Title of the course	**Advanced Marketing Models**		
Title of the Academic Programme	38.04.02. Management Master program “Management and Analytics for Business”		
Type of the course	Optional		
Prerequisites	▪ Statistical Methods of Analysis ▪ Practical Machine Learning		
ECTS workload	3		
Total indicative study hours	Directed Study	Self-directed study	Total
	48	66	114
Course Overview	The primary focus of this course is on quantitative models that can be used by managers to support marketing decisions. In addition to having conceptual skills, modern managers must increasingly master techniques of data-driven decision modeling to do strategic planning based on information from corporate information systems as well as external data sources. This course teaches how to apply econometric, machine learning and optimization techniques to marketing problems.		
Intended Learning Outcomes (ILO)	Upon completion of the course students will be able to: ▪ Choose methods adequately corresponding to the objectives of a research project ▪ Collect, store, process and analyze data according to high standards ▪ Conduct empirical business research using modern analytic software tools ▪ Develop and apply new research methods ▪ Solve managerial problems using best practices of data analysis using modern computational tools		
Teaching and Learning Methods	▪ Every week a 1-2 hour introductory tutorial is given to familiarize students with the topic ▪ A set of case studies every week is solved in class ▪ 90% of time is allocated to practicing Excel and R programming skills		

Content and Structure of the Course

№	**Topic / Course Chapter**	**Total**	**Directed Study**		**Self-directed Study**
			Lectures	**Tutorials**	
1	Optimization modeling for Marketing	27	6	6	15
2	Advanced Excel functions for analyzing marketing data	27	6	6	15
3	Econometric modeling of scanner sales data	27	6	6	15
4	Regression analysis of discrete/limited and panel data in marketing	23	4	4	15

5	Working with high dimensional data. Reducing Dimensionality with Principal Component Analysis. Machine learning techniques capable of handling many predictors (Random Forest, GBM).	10	2	2	6
Total study hours		**114**	**24**	**24**	**66**

Indicative Assessment Methods and Strategy	**Assessment methods:** **Empirical case studies solved in class:** 75-min. tests given at classroom every week. Each problem set consists of 2-5 problems. The total number of case studies equal the number of tutorials (around 10-12 case studies). For each case study a student can get the following scores: ▪ 0 (absent or everything is incorrect) ▪ 1 (present, but mostly incorrect solution) ▪ 2 (some mistakes) ▪ 3 (no mistakes) *Grade_Cases* is computed as the % of a student's total score out of the maximum achievable score. **Kahoot:** Weekly tests using Kahoot.it platform covering the material studied in previous weeks. To compute *Grade_Kahoot* the sum of Kahoot points is calculated for each student. Then it is converted to a *percentile* from 0 to 100 using the corresponding Excel formula. An alternative *% of max* is calculated as the % of maximum score achieved by the top-performer. *Grade_Kahoot*=max(*percentile, % of max*) *Example. Student A's sum of Kahoot points for all tests is 12000. Student A is the third among 10 students taking the class. Therefore, her result is not worse than that of 8 students out of 10 and her percentile=80. At the same time, the leader has the sum of 13000. Therefore, student A's % of max=92.3%. Therefore, student A's Grade_Kahoot=max(80,92.3)=92.3.* **Midterm exam based on material covered in class and the Data Camp Courses:** each student should take a few Data Camp courses specified by the instructor (up to 2 courses). Free access will be granted to students of this course. The grading is based NOT on the DataCamp's score, but on the student's performance on the test given by the instructor. The test will check how well students mastered the material studied both in class and at DataCamp. *Grade_Midterm* is the score from 0% to 100% displayed by the LMS. **Exam:** Final test (duration: 75-minutes) covering all topics. *Grade_Exam* is the score from 0% to 100% displayed by the LMS. **Assessment strategy:** ***Grade_Final***= (0.25****Grade_Cases***+0.25****Grade_Kahoot***+0.25****Grade_Midterm***+0.25****Grade_Exam****)/10=(****Grade_Cases***+***Grade_Kahoot***+***Grade_Midterm***+***Grade_Exam****)/40*

	All components of the final grade (***Grade_Cases, Grade_Kahoot, Grade_Midterm, Grade_Exam***) are measured on a scale from 0 to 100 and are NOT rounded. The final grade is rounded according to the standard mathematical rules (such as 8.5→9, 8.4999→8, etc.). In other words, the policy is to: ▪ Use exact percentages and percentiles on a 0-100 scale ▪ Round only the final 10-point grade, while using no rounding of scores for individual components **None of the grades is a blocking grade, i.e. students can fail on any of the assessments and still pass the course.**
Readings / Indicative Learning Resources	Mandatory 1. Quirk T. J. Excel 2016 for Business Statistics. – Springer International Publishing Switzerland, 2016. The book is available through HSE's electronic resources (Springer Books) 2. Rossi, Peter E., Causal Inference in Marketing Applications (March 20, 2017). Available at SSRN: https://ssrn.com/abstract=3035502 or http://dx.doi.org/10.2139/ssrn.3035502 3. Leeflang, P. S., Wieringa, J. E., Bijmolt, T. H., & Pauwels, K. H. (2014). Modeling Markets: Analyzing Marketing Phenomena and Improving Marketing Decision Making. Springer. (https://proxylibrary.hse.ru:2176/book/10.1007/978-0-387-78213-3) 4. Leeflang, P. S., Wieringa, J. E., Bijmolt, T. H., & Pauwels, K. H. (Eds.). (2017). Advanced Methods for Modeling Markets. Springer International Publishing. (https://proxylibrary.hse.ru:2176/book/10.1007/978-3-319-53469-5) Optional 1. Hodeghatta, U. R., & Nayak, U. (2016). Business Analytics Using R-A Practical Approach. Apress. (freely available through HSE's electronic resources for HSE students and staff: https://proxylibrary.hse.ru:2176/book/10.1007/978-1-4842-2514-1) 2. R for Marketing Research and Analytics/ Chris Chapman, Elea McDonnell Feit. Springer-Verlag, Switzerland, 2015 (freely available through HSE's electronic resources for HSE students and staff: http://www.springer.com/book/9783319144351) 3. Malthouse E. (2013), "Segmentation and Lifetime Value Models Using SAS", SAS 4. Croissant, Y., & Millo, G. (2018). Panel Data Econometrics with R. John Wiley & Sons. 5. Beaujean, A. A. (2014). Latent variable modeling using R: A step-by-step guide. London: Routledge. 6. Kumar, V., & Petersen, J. A. (2012). Statistical Methods in Customer Relationship Management. John Wiley & Sons.

Indicative Self- Study Strategies	**Type**	**+/–**	**Hours**
	Reading for seminars / tutorials (lecture materials, mandatory and optional resources)	-	
	Assignments for seminars / tutorials / labs	+	23

	E-learning / distance learning (MOOC / LMS)	+	23
	Fieldwork	-	
	Project work	-	
	Other (please specify)	-	
	Preparation for the exam	+	20
Academic Support for the Course	Academic support for the course is provided via LMS, where students can find guidelines and recommendations for self-study and sample questions for exam preparation. The exam is also conducted using LMS testing functionality. DataCamp platform is used in this course so that students can improve their R coding skills. DataCamp is an interactive learning platform for R, Python & SQL for Data Science. They teach cutting edge data analysis tools in an easily accessible manner.		
Facilities, Equipment and Software	▪ VNC tool for sharing teacher's screen with students ▪ Microsoft Excel ▪ R package and RStudio environment (latest versions are available from the following pages: https://www.rstudio.com/products/rstudio/download/ https://cran.r-project.org/mirrors.html) ▪ Student resources are available from the course's LMS page		
Special conditions for organization of learning process for students with special needs	The following types of comprehension of learning information (including e-learning and distance learning) can be offered to students with disabilities (by their written request) in accordance with their individual psychophysical characteristics: 1) *for persons with vision disorders:* a printed text in enlarged font; an electronic document; audios (transferring of learning materials into the audio); an individual advising with an assistance of a sign language interpreter; individual assignments and advising. 2) *for persons with hearing disorders: a* printed text; an electronic document; video materials with subtitles; an individual advising with an assistance of a sign language interpreter; individual assignments and advising. 3) *for persons with muscle-skeleton disorders: a* printed text; an electronic document; audios; individual assignments and advising.		
Course Instructor	Evgeny A. Antipov, PhD, Associate Professor, Department of Management		

Annex 1

Assessment Methods and Criteria

Assessment Methods

Types of Assessment	**Forms of Assessment**	**Modules**			
		1	**2**	**3**	**4**
Formative Assessment	Cases	*	*		
	Kahoot	*	*		
	Midterm Exam		*		
	DataCamp	*	*		

Summative Assessment	Exam		*		

Assessment Criteria

Assessment is mainly based on either % of correct answers or the percentile to minimize the subjectivity of assessment. The details are described in the "Assessment methods" section of the syllabus.

All components of the final grade (***Grade_Cases, Grade_Kahoot, Grade_Midterm, Grade_Exam***) are measured on a scale from 0 to 100 and are NOT rounded. The final grade is rounded according to the standard mathematical rules (such as 8.5→9, 8.4999→8, etc.). In other words, the policy is to:

- Use exact percentages and percentiles on a 0-100 scale
- Round only the final 10-point grade, while using no rounding of scores for individual components

None of the grades is a blocking grade, i.e. students can fail on any of the assessments and still pass the course.

Annex 2

Recommendations for students:

1. Students are expected to install the software used in class on their personal desktops/laptops so as to practice their coding skills.
2. Students should keep in mind that lectures contain not only theoretical material, but also solutions of problems. We do not train for tests on seminars. To successfully master the material attending both lectures and seminars is essential.
3. In order to prepare for the exam, study all problems given on lectures and seminars – exam problems will be similar to them.
4. Most of the coursework is scored automatically in LMS. Students should keep in mind that "." and "," can be used interchangeably there, but figures should be rounded as requested in each problem.
5. When students have been given access to DataCamp, they are encouraged to take not only courses they are required to take, but also at least 3 extra courses that will help acquire skills useful for the job market.