

Collective consumer behavior

Syllabus
Fall Semester

Last edit: 05.08.2024

Chair of Marketing for Social Impact
URPP Social Networks
Department of Business Administration
University of Zurich, Switzerland
© Zurich, 2024. All rights reserved.

PREAMBLE

Welcome to our “Collective consumer behavior” syllabus!

“The internet connects us like the neurons in a giant brain. And with such a collective intelligence, what cannot we be capable of?”

Adapted from Stephen Hawking

Why do most products, individuals and businesses remain little known, but a minority of them achieves runaway popularity and financial success? Why are some products and services adopted widely (e.g., Instagram, Tiktok, WeChat), but others failed spectacularly (e.g., Google glasses, Google+)? Which are key social factors to consider when designing a marketing intervention aimed at triggering the large-scale adoption of a new product or behaviour? What is the role of algorithms in all of that? To study these and more fascinating questions, the students will **learn how to model the adoption of new products and behaviours in terms of the individual-level choices made by many consumers**. Such choices are not independent, but shaped by the social networks that connect the consumers. As a result, the collective dynamics generated by many consumers’ choices lead to **counterintuitive properties often overlooked by standard econometric and machine-learning models**, with critical implications for marketing and social-change policies.

To understand collective consumer behavior and its marketing implications, the students will learn **agent-based modelling and social network analytics techniques**. The seminar aims to provide the students with a researcher-like experience: Each student will study in depth one research paper, attempt to replicate one of its figures, and deliver a final presentation on it. The papers cover **four themes**: (1) How consumers form social networks; (2) How social networks affect the spreading of information and behaviors; (3) Seeding and influencer marketing; (4) How algorithms influence network formation and social contagion.

The seminar includes initial lectures that will provide the students with the elements of agent-based modelling and network science needed to understand and replicate the paper; **hands-on tutorials in Python**; a lecture on how to prepare a research presentation; intermediate supervision sessions. The seminar is particularly suited to: Business students who wish to deepen their understanding of the social forces driving consumer behavior; students who aim to **strengthen their Python skills with a simple research project**; students who are unsure whether to enroll for a PhD program in the future, as they could learn by doing how the research process looks like.

This seminar will most likely take place in the fall semesters. All necessary information concerning the course can be found within this syllabus, in the UZH course book, and on our corresponding webpages.

We are pleased to welcome you to the seminar, and we hope that it will give you insights to make a large-scale difference in the world – whether through your future products, startups, or research papers.

1. QUICK OVERVIEW

Instructors:

Dr. Manuel Sebastian Mariani

Mr. Fei Wang

Office: Andreasstrasse 15, CH-8050 Zurich, Switzerland

Phone: +41 44 634 2918

E-mail: market-research@business.uzh.ch

Web: <http://bit.ly/manuelsmariani>;

<https://www.business.uzh.ch/de/research/professorships/market-research/teamoverview/tcurrent/Fei.html>

Office hours by appointment.

Type:

Seminar

Target Audience:

Master students assigned to the "Wahlpflichtbereich" BWL 4.

Master students assigned to the Minor in Marketing.

Master students in Informatics (including Major in Artificial Intelligence, Data Science, Information Systems).

Please refer to the Course Catalogue for more details.

Frequency:

Fall semester.

APS (ECTS):

3

Workload Statement:

Part	Workload	ECTS
Course Preparation	2h	
Class attendance (meetings)	22h	
Individual work	50h	
Final Presentations	16h	
Total	90h	3

Maximum Number of Students:

8

Content:

Introduction into research on collective consumer behavior and agent-based modeling of social processes.

Language:

English

Selected papers:

Network formation. How consumers connect in social networks:

1. Bianconi, G., & Barabasi, A. L. (2001). Competition and multiscaling in evolving networks. *Europhysics Letters*, 54(4), 436-442.
2. Karimi, F., Genois, M., Wagner, C., Singer, P., & Strohmaier, M. (2018). Homophily influences ranking of minorities in social networks. *Scientific Reports*, 8(1), 1-12.

Social contagion. How social networks affect the spreading of information and behaviors:

3. Watts, D. J., & Strogatz, S. H. (1998). Collective dynamics of 'small-world' networks. *Nature*, 393(6684), 440-442.
4. Centola, D., & Macy, M. (2007). Complex contagions and the weakness of long ties. *American Journal of Sociology*, 113(3), 702-734.

Seeding and influencer marketing. Which consumers to target first:

5. Valente, T. W., & Davis, R. L. (1999). Accelerating the diffusion of innovations using opinion leaders. *The Annals of the American Academy of Political and Social Science*, 566(1), 55-67.
6. Watts, D. J., & Dodds, P. S. (2007). Influentials, networks, and public opinion formation. *Journal of Consumer Research*, 34(4), 441-458.

Consumer-algorithm interactions. How algorithms influence network formation and social contagion.

7. Keijzer, M. A., & M s, M. (2021). The strength of weak bots. *Online Social Networks and Media*, 21, 100106.
8. Zhang, S., Medo, M., L , L., & Mariani, M. S. (2019). The long-term impact of ranking algorithms in growing networks. *Information Sciences*, 488, 257-271.

Additional literature, videos, tools, and some other recommendations will be given in class.

Prerequisites:

Required: Basic R or Python programming; Knowledge of basic probability theory. No prior knowledge of social network methods or social dynamics modelling is required.

Course Number:

03SM22MO0175

Registration:

Please contact us through our website for enrolling and for current information. The number of participants is limited. Application for this seminar is via the new module booking tool: <https://studentservices.uzh.ch/uzh/launchpad/>. To apply for the seminar, students are required to upload a CV, academic transcript (grades) and brief motivation letter (max. 1 page).

Registration deadline:

Please see the respective information posted on our website and in the VVZ.

Grading:

Collective Consumer Behavior - Syllabus 4

70% final presentation [50% evaluation of the presentation; 20% evaluation of the submitted code].

30% in-class participation [20% multiple-choice tests during the final presentations; 10% active participation].

Location:

Please see the respective information posted on our website and in the VVZ.

Note:

This information in the syllabus supports the official information in the electronic university calendar (VVZ - Vorlesungsverzeichnis). In cases of doubt, the official information at the VVZ is valid.

2. COURSE MATERIAL

Students have access to our web-based e-learning platform on OLAT to download the slides presented in class and find other relevant material such as datasets and literature. The following procedure is strongly recommended as preparation for the classes.

2.1 Overview of Classes

On our webpage, an overview of all courses given by our team can be found. Students can develop an idea of the classes and how they best fit into their personal agenda. The sites can be accessed through:

Chair for Marketing and Market Research Website

Marketing Group Zurich Website

2.2 Hands-on Guides

Several files have been prepared that provide background knowledge of the expectations in the classroom and some tips concerning "How to give presentations in class", "How to write in an academic style", etc. These guides should be read prior to class to obtain a good understanding of what is expected.

2.3 Syllabus

For each course, a syllabus exists with all details concerning that specific course. This is the guideline for the class and a must-read. Everything concerning the grading of the course, the agenda, the planned topics, the workload, readings, and much more can be found in the syllabus.

2.4 The Slides

The slides presented and discussed in class are available on the e-learning platform. Slides can be downloaded for each class. The slides do not completely cover the entire syllabus. Therefore, it is necessary to participate in class.

2.5 Recommended Readings

Recommended readings are articles that go into more details on the specific topics. They are provided in the course material folder.

2.6 Recommended Other Material

Throughout the class, we recommend different videos to watch, websites to verify, tools to test, and so on. They are presented at the end of each lecture.

2.7 Templates

Slide presentations have to meet our formal requirements. Templates will be provided at the beginning of this course.

2.8 Additional Readings

The literature on social dynamics is cross-disciplinary, with relevant papers found in leading journals in marketing, management science, computer science, physics, and sociology, among others. The instructor can guide the students by pointing to the most relevant papers to further study a topic of interest.

3. COURSE CONTENTS

3.1 Overview of Meetings

- 1st lecture and Kick-Off meeting, 02.10.2024, 14-18h.
- 2nd lecture: 09.10.2024, 14-18h.
- 1st supervision session: 16.10.2023, 14-17h.
- Research seminar and 2nd supervision session: 23.10.2024, 14-18h.
- 3rd supervision session: 31.10.2024, 14-17h.
- Research seminar and 4th supervision session: 06.11.2024, 14-18h.
- Submission of presentation slides and code: 13.11.2024, 23:59h.
- 1st final presentation block: 13.11.2024, 08-12h.
- 2nd final presentation block: 13.11.2024, 14-18h.
- 3rd final presentation block: 15.11.2024, 08-12h.
- 4th final presentation block and final apero: 15.11.2024, 14-18h.

3.2 Details of Classes

This is the preliminary outline for HS 2024. This is subject to change and additional literature might be given in class.

Lecture 1. Overview of Collective Consumer Behavior

1.1. Kick-off

Objectives of the seminar.

Counterintuitive properties of collective behaviors.

Schedule and evaluation criteria.

1.2. Overview of collective consumer behavior

Preview of the 4 themes examined in the seminar and the related research questions.

1.3. Python tutorial.

Simulating a preferential attachment model. Template code will be provided.

1.4. Elements of scientific research presentations.

Necessary elements and thoughts about presentation style.

Lecture 2. Tools to understand collective consumer behavior

2.1. Agent-based modelling.

Why agent-based models to understand collective consumer behavior.

Key elements of agent-based models.

Simulating the spreading of a new product.

Strengths and limitations of simulations.

How agent-based models complement econometrics, machine learning, and experiments.

2.2. Network science.

The surprising properties of real-world social networks.

Global properties: Small worlds and degree distributions.

Local properties: Strong and weak ties, clustering.

Individual centrality.

Simulating a network formation process.

2.3. Python tutorial.

Simulating the threshold model. Template code will be provided.

2.4. Coding task assignment.

Each student will be assigned to a paper. She/he will receive a specific coding task with instructions on which results to replicate from the assigned paper, as well as instruction for the structure of the final presentation.

Research seminars.

After the two introductory sessions, the instructors will also deliver two research seminar, one covering modern research in social contagion, and the other one covering modern research in influencer marketing.

Supervision sessions 1-4.

During these sessions, the students can ask specific questions regarding the coding task and the presentation. In each supervision session, each student will have a specific time slot. When needed, the instructors will help solve obstacles faced in the implementation of the assigned tasks.

Final presentation blocks 1-4.

Block 1: 2 presentations on Network formation.

Block 2: 2 presentations on Social contagion.

Block 3: 2 presentations on Seeding and influencer marketing.

Block 4: 2 presentations on Consumer-Algorithm interactions.

4. EVALUATION

70%: Final presentation (50% final presentation + 20% code evaluation)

50% final presentation.

Each presentation will last 20 minutes, followed by 20 minutes of questions and discussions. Evaluation criteria:

- Correctly positioning the paper in the literature.
- Clearly articulating the research question(s) answered by the paper.
- Clearly specifying the agent-based modelling elements of the paper (agents, decision rule, network structure, control and order parameters, validation).
- Clearly articulating the papers' implications for social dynamics research.
- Critically presenting the obtained results in the coding task, including faced challenges and reasons behind possible discrepancies compared to the original paper's results.

- Critically presenting the limitations of the paper (e.g., data, model, implementation, interpretation of results) and ideas for further research on the topic.

20% evaluation of the submitted code.

Evaluation criteria.

- Correctness of the implementation.

Deadline.

The presentation slides and code must be submitted **no later than 25.09.2024, 23:59** to manuel.mariani@business.uzh.ch [email subject: Collective Consumer Behavior Seminar: Final Documents (SURNAME)].

30%: In-class participation (20% in-class multiple-choice tests + 10% active participation)

20% multiple-choice tests.

Evaluation of 4 multiple-choice tests (4 questions each) that will be held during the presentation days, after each block of presentations. The questions can be answered by simply following the presentations and related discussions, and they will not require prior study of all the papers.

10% active participation.

We would like to create a very interactive environment in which we all participate and openly share our ideas in a kind way. Even very basic questions or doubts are welcome. Therefore, we simply evaluate the quantity of your interventions during the 2 lectures and questions during the discussions following the presentations.

5. ACADEMIC FRAUD

Academic fraud is an act by a student, which may result in a false academic evaluation of that student or of another student. The Honor Code of the University of Zurich applies to all work in this course and will be strictly enforced. The intent of the Honor Code in this course is to ensure that each student claims and receives credits for his/her own efforts. Violations to this are considered academic fraud.

6. ADMINISTRATIVE COMMENTS

6.1 Students with Disabilities

Any student with a documented disability needing academic adjustment or accommodations is requested to speak with the instructor of this course during the first day of the course. All discussion will remain confidential. Students with disabilities will need to also contact the directors of the school.

6.2 Registration Cards

Registration cards will be handed out at the beginning of the course. Students will be asked to add a recent profile picture and some personal information. The information is kept confidential and is only accessible to our team. We will need this information to learn the students' names by pictures and for administrative reasons. Delivering these files is of course voluntary.

6.3 Name Plates

Name plates should be used regularly in class so that we can learn the students' names. Name plates will be handed out during the first day of the course.

6.4 Getting in Contact

Emails should be short and to the point. Before sending an email, it should be clarified that email is the right medium for the question or concern at hand. Questions can also be asked at the beginning of or during lectures and exercises. Emails should be first sent to the TAs.

6.5 Class Dismissal

Students are asked to remain seated and attentive until class is dismissed by the lecturer or teaching assistant.

6.6 Sound-emitting Devices

It is expected that everyone turns off/mutes all devices that emit sounds and noises that may interrupt the class (e.g., mobile phones, pagers, watch alarms). If an occasion arises, in which a student may need to receive a phone call, he or she has to inform the lecturer or teaching assistant before class.

6.7 Laptops and Calculators

Laptops, tablets, mobile phones, and programmable calculators are allowed in class if indicated by the lecturer or teaching assistant and as far as their usage supports the individual learning process. Otherwise, they are not permitted.

6.8 Important Deadlines and Class Schedule

Important deadlines and the class schedule are communicated in the first lecture. If a student cannot participate in this lecture, it is his/her duty to obtain any relevant information.

We are very much looking forward to meeting you in class!