
Wageningen University

*Department of Social Sciences
Management Studies Group &
Information Technology Group*
Hollandseweg 1
6708 KN Wageningen

Course guide 2013/2014

Introduction to Management and Life Sciences MST-23806

Name:	Introduction to Management and Life Sciences
Code:	MST-23806
Load:	6 credit points ECTS (168 hours)
Contact person:	Ir. MA Zijp, room 6024, phone: 0317 484079 e-mail: maarten.zijp@wur.nl
Lecturers:	Drs M Rothengatter, Lecturers from the departments of BEC, INF, MCB, MST, ORL and guest lecturers.
Examiners:	Drs M Rothengatter, ir MA Zijp
Scheduling:	1 st period, mornings
First lecture:	Tuesday September 3 rd , 2013; 8:30 C71
Exam date:	Tuesday October 22 nd 2013 14.00-17.00 C75 re-exams: not scheduled definitively
Language:	Lectures and instruction: English other materials: English.
Blackboard:	Yes
Contact hours:	Tue, Wed, Thu, Fr 8.30-10:15 (see detailed schedule)
Contents:	<ol style="list-style-type: none">1. Profile of the course2. Intended learning outcomes3. Learning materials and resources4. Educational activities5. Assessment strategy (examination)6. The principal themes of the contents7. Outline and schedule of the programme of the course

1. PROFILE OF THE COURSE

Aim

Improvements in healthy food, a clean environment and in the combat against diseases, become possible through a successful integration of Life Sciences and Management Sciences. Life Sciences provide a collection of tools and techniques to produce new products and develop new processes based on organisms or parts of organisms. Thus, Life Sciences provide important contributions to innovative products and processes. Management Sciences provide the instruments that enable design, implementation and support of innovative organizational and business processes. Bèta-engineers are pressured by their working environment to develop their communicative skills; they have to work in multi-disciplinary teams, cooperate in innovative business processes and production processes, and manage different forms of knowledge in various networks. Bèta-engineers may adopt a management role in academic environments, in production facilities or in various supply chains. From this professional perspective, Bèta-engineers apply their knowledge within settings in which people with different backgrounds, different interests, different positions in the chain and knowledge institutions are represented. Integration and satisficing use of each contribution makes a successful completion of complex processes such as product innovation, market launches and managing a supply chain, possible. Bèta engineers with a Gamma specialisation can play an important, initiating and binding role in such processes. Bèta-Gamma engineers should not only be able to produce and/or understand technical designs but also to take into account a wide range of contextual variables such as market variables and enterprise variables

Target group

This course is intended for students with a Bèta-background who have chosen for the specialization MME-D (MLS).

Benefit for students

It is the starting course for the MLS specialization where all MLS students of that year are together.

Assumed prerequisite knowledge

Beta education, no explicit prerequisite knowledge is required.

2. INTENDED LEARNING OUTCOMES

After completion of this course the student is expected to be able to:

- comprehend technical and managerial aspects of decision making and decision support approaches for innovation processes at a strategic and operational level;
- comprehend approaches for the development and implementation of technology that take into account non-technological variables such as contextual variables of a business - and consumer driven environment;
- identify relevant principles and methods used in research regarding three themes: (1) management of innovations, (2) innovation in decision support and economics, (3) innovation in operations management;
- demonstrate and apply such knowledge in a case study on a 'real life' challenge.

3. LEARNING MATERIALS AND RESOURCES

PowerPoint presentations, case information and assignments will be published on the course's BlackBoard. Literature links will be provided but each group will also have to perform a literature search that provides information relevant for their research questions.

Literature:

We will use the book of Allen F Repko: Interdisciplinary Research: process and theory, the 2nd edition published by SAGE (2012) ISBN 978-1-4129-8877-3

This book is for sale at the WURshop in FORUM.

Digital learning material

Additional learning material is provided digitally on Blackboard and consists of:

- Slides of each lecture;
- A full description of the algae case.
- An extensive collection of external links for inspirational purposes
- Course guide
- Detailed schedule of the course
- A trial exam

Entry points for Algae case:

Carlsson, A. S., van Beilen, J. B., Möller, R., & Clayton, D. (2007). Micro- and macro-algae: utility for industrial applications: CNAP University of York.

Wijffels, R. H., & Barbosa, M. J. (2010). An Outlook on Microalgal Biofuels. *Science*, 329(5993), 796-799.

References for the other topics discussed in class will be made available later on (via Blackboard).

4. EDUCATIONAL ACTIVITIES

The course consists of lectures, case work and a written exam.

The following is a short description of the activities:

- Lectures; The lecturers provides overviews, highlights elements that are especially important and shows examples. Students can ask a variety of questions, for instance regarding topics and terminology in relation to their case work. In the last lecture questions and answers of the trial exam are discussed.
- Students work on the case in teams of about 4, starting in week 3 and prepare a case report. During the casework students can ask questions to the case supervisor. Per group a presentation of about 15 minutes has to be given.
- written exam (see assessment strategy)

5. ASSESSMENT STRATEGY (EXAMINATION)

The assessment of the course is based on two elements: written group report from the case (50% of mark) and the written exam (50% of mark), however, minimum grade of 5.0 for each part is mandatory to pass the course.

The final mark is rounded to the nearest point if smaller than 5.5; otherwise to the nearest half point.

The final report of the group will be judged.

The report must satisfy the requirements stated under 'Results of the case study (see section 6)

The following criteria are used to evaluate the report.

- Degree to which the report matches the requirements stated in the 'assignment for each group' as stated in 6 part 2
- Clarity of the problem statement and the central research question.
- Visibility and quality of the beta-gamma approach throughout the report
- Consistency of problem statement, research question/aim, analysis and solution
- Degree to which analysis, solution and evaluation are clearly distinguished.
- Clarity of criteria used to evaluate solutions
- Usage of literature from various knowledge domains and disciplines
- Structure and readability of the report
- Reflection on the beta-gamma approach for this case.

There is a written examination on the subjects and topics of the lectures given during the first three weeks, the book and on specific literature provided during these weeks. The exam is a closed book exam with open questions. For the exam three hours are scheduled. The final report of the case and written exam will each contribute 50% to the final mark for this course. A minimum grade of 5.0 for each part is mandatory to pass the course.

	Exam	Case report
intended learning outcomes		
1. comprehend technical and managerial aspects of decision making and decision support approaches for innovation processes at a strategic and operational level;	X	X
2. comprehend approaches for the development and implementation of technology that take into account non-technological variables such as contextual variables of a business - and consumer driven environment;	X	X
3. identify relevant principles and methods used in research regarding three themes: (1) management of innovations, (2) innovation in decision support and economics, (3) innovation in operations management;	X	X
4. demonstrate and apply such knowledge in a case study on a 'real life' challenge		X

6. THE PRINCIPAL THEMES OF THE CONTENTS

The course has two parts.

The first part is an introduction in main beta-gamma concepts and in the different themes of the specialization Management and Life Sciences.

The second part provides an opportunity to apply the concepts in a group-assignment.

Part 1 Introduction

Content

Background information to the following issues:

- Introduction to the three MLS-themes: Management of Innovations, Innovation in Decision Support and Economics, Innovation in Operations Management
- Introduction to the case and the assignment
- General information on important Gamma- Beta subjects: 'Engineers in a managerial role'; 'Research that crosses disciplinary boundaries'; 'Innovation

- and processes'; 'Systems and Interfaces'; 'Qualitative and Quantitative variables'.
- Introduction to underlying disciplines: Information Technology, Business Economics, Operational Research and Logistics, Management Studies, Marketing and Consumer Behaviour.

Part 2 Case Study: Algae: transforming micro-organisms into new products

Content

The students are asked to form groups (max four students/group) and to choose one of the three MLS-themes. This theme is a first focus for the Gamma- Bèta subject in which the groups of students will do their research. The students will perform this research under the supervision of a lecturer with an affiliation to the chosen MLS-theme.

The entry points for the case study are two documents (Carlsson, et al., 2007; Wijffels, et al., 2010).

The assignment for each group is:

- Analyse the two documents
- Within the context of the documents, formulate a problem statement that fits the learning objectives of the course. The problem statement includes a description of a company or organisation or institute.
- Formulate a research question that satisfies the following requirements:
 - an adequate answer cannot be formulated without use of knowledge from both beta as well as gamma domains
 - is relevant and realistic for the company, organization or institute as described in the problem statement
 - is clearly formulated and applicable to the specific case
 - focuses on relations between variables in bèta domains and variables in gamma domains
- Write a report that aims to provide (a) solution(s) in answer to the research question and includes an evaluation of the solution(s)

Results of the case study

- Joint final report by each group
- The final report
 - includes analyses from technological and managerial viewpoints and relates both analysis.
 - Includes a reflection chapter.
This chapter presents a reflection on the value of a Gamma-Bèta approach in the case study.

7. OUTLINE AND SCHEDULE OF THE PROGRAMME OF THE COURSE

Application

Students are kindly requested to apply timely for the course through SSC, after which they will have access to BlackBoard. When application gives problems or the deadline for course registration has passed, students should contact maarten.zijp@wur.nl.

Schedule

The course is given in period 1 in the mornings, see next page.

Schedule 2013-2014 (Introduction to Management and Life Sciences MST-23806)

	Monday	Tuesday: 08.30-10.15, C-71	Wednesday: 08.30-10.15, C-71	Thursday: 08.30-10.15, C-71	Friday: 08.30-10.15, C-71
Week 1	02/09 no activity	MR: 03/9 Introduction course; MLS themes, Case	ES: 04/09 Interdisciplinarity 1	ES: 05/09 Interdisciplinarity 2	SW: 06/09 Process, system engineering
Week 2	students form groups (this week)	10/09 Reserve class	JV: 11/09 Operations Research and Logistics	MR: 12/09 Innovation	SW: 13/09 Information Technology
Week 3	students work on questions in group (this week)	MR: 17/9 Management of Innovations	HT: 18/9 Marketing/ Consumers	HH: 19/09 Business and Economics - submit group's draft central research question before 12.00	MR: 20/09 Case: central questions
Week 4	Submit group's final central research question before 12.00 supervisors are assigned	preferably meeting 8.30-10.15 between supervisor and group(s)	Case supervision	Case supervision	Case supervision
Week 5	students work on case (this week)	Case supervision	Case supervision	Case supervision	Case supervision
Week 6	students work on case (this week)	Case supervision	Case supervision	Case supervision	MR: 11/10 Presentation of results (lecture room C-71 -12.15)
Week 7/8	Submit Final report on Monday October 14	Exam Tuesday October 22, 14.00-17.00 C-75			

Involved staff

Drs. M Rothengatter (MR)
Dr. S Wolfert (SW)
ir EJA Spelt (ES)
Dr.ir H Hogeveen (HH)
Dr.ir PW van Kleef
Prof.dr.ir. H van Trijp (HT)
Prof.dr.ir. J van der Vorst (JV)
Ir. M.A. Zijp (MZ)

Department

Management Studies
Information Technology/LEI
Food Quality and Design
Business Economics
Marketing and Consumer Behaviour
Marketing and Consumer Behaviour
Operations Research and Logistics
Information Technology

Role

coordinator, lecturer, supervisor and examiner
lecturer and supervisor
lecturer
lecturer and supervisor
supervisor
lecture
lecturer
contact person, examiner