

## Syllabus

### Course description

<b>Course title</b>	<b>INNOVATION MANAGEMENT</b> <b>Course Description version 1.0</b>
<b>Course code</b>	27182
<b>Scientific sector</b>	SECS-P/08
<b>Degree</b>	Master Entrepreneurship and Innovation
<b>Semester and academic year</b>	1st semester, ay 2018-19
<b>Year</b>	2 <sup>nd</sup>
<b>Credits</b>	7
<b>Modular</b>	No

<b>Total lecturing hours</b>	42
<b>Total lab hours</b>	--
<b>Total exercise hours</b>	
<b>Attendance</b>	suggested, but not required
<b>Prerequisites</b>	not foreseen
<b>Course page</b>	<a href="https://www.unibz.it/en/faculties/economics-management/master-entrepreneurship-innovation/course-offering/">https://www.unibz.it/en/faculties/economics-management/master-entrepreneurship-innovation/course-offering/</a>

<b>Specific educational objectives</b>	<p>The course refers to the typical educational activities and belongs to the scientific area of Business Administration.</p> <p>To learn models, tools, methods to manage innovation within organizations. To develop critical and analytical reasoning about firms innovation management. To analyze and solve problems that arise in organizations that work on innovative projects. To learn how read, summarize and present scientific papers on innovation management.</p>
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<b>Lecturer</b>	<b>Alessandro Narduzzo</b> , E508, <a href="mailto:anarduzzo@unibz.it">anarduzzo@unibz.it</a> ; lecturer's page <a href="https://www.unibz.it/en/faculties/economics-management/academic-staff/person/5125-alessandro-narduzzo">https://www.unibz.it/en/faculties/economics-management/academic-staff/person/5125-alessandro-narduzzo</a>
<b>Scientific sector of the lecturer</b>	SECS-P/08
<b>Teaching language</b>	English
<b>Office hours</b>	please refer to the lecturer's web page
<b>Lecturing assistant</b>	Not foreseen
<b>Teaching assistant</b>	Not foreseen
<b>Office hours</b>	21
<b>List of topics covered</b>	Innovation in a systemic view - Sources of innovation – Types of innovation – Patterns and models of innovation – Timing of entry – Technological cycles – Technological speciation – Management innovation – Innovation management tools - Design Thinking - Managing open innovation - Innovation management in complex systems - Managing innovation through

	experimentation - Managing innovation through improvisation - Championing innovation- Building innovative organizations.
<b>Teaching format</b>	The course is based on both theoretical lectures and the discussion of case-studies and other empirical materials, and it requires the active participation of students in class discussions.

<b>Learning outcomes</b>	<p>Knowledge and understanding of innovation as a systemic phenomenon involving the creation and the development of novel organizational knowledge that is commercialized into innovative products and services. Applying knowledge and understanding to confront and analyse different models, to suggest the proper tools for specific situations, to understand how new products, organizational knowledge and managerial approach to innovation may create new value for the customers and new opportunities for the firm.</p> <p>Making critical and autonomous judgments in the analysis of empirical cases of innovation and in the comparison of theoretical models and perspectives. Communication skills to describe concepts and models and to present in a persuasive and proper way the results of critical analyses of innovation cases.</p> <p>Learning skills to deepen in an autonomous way a critical understanding of theoretical models on innovation and of the complex interaction between entrepreneurship and innovation.</p>
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<b>Assessment</b>	<p><i>All students are regarded as attending students, unless they explicitly ask (by email to the professor within December 1, 2015) to be treated as non-attending students.</i></p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">WORKLOAD FOR ATTENDING STUDENTS</th> <th colspan="3">WORKLOAD FOR NON-ATTENDING STUDENTS</th> </tr> <tr> <th>Hours</th> <th>#</th> <th>Total</th> <th>Hours</th> <th>#</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td><b>Lectures</b></td> <td>3</td> <td>14</td> <td>42</td> <td></td> <td>0</td> <td>0</td> </tr> <tr> <td><b>Readings</b></td> <td>3</td> <td>27</td> <td>81</td> <td>4</td> <td>33</td> <td>132</td> </tr> <tr> <td><b>Presentation and Workshop</b></td> <td>9</td> <td>1</td> <td>9</td> <td></td> <td></td> <td>0</td> </tr> <tr> <td><b>Wrap-up report</b></td> <td>10</td> <td>1</td> <td>10</td> <td></td> <td></td> <td>0</td> </tr> <tr> <td><b>Exam preparation</b></td> <td>2</td> <td>14</td> <td>28</td> <td>3</td> <td>14</td> <td>42</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0</td> </tr> <tr> <td><b>TOTAL (hours)</b></td> <td></td> <td></td> <td><b>170</b></td> <td></td> <td></td> <td><b>174</b></td> </tr> <tr> <td>Standard effort (hours)</td> <td></td> <td></td> <td>175</td> <td></td> <td></td> <td>175</td> </tr> </tbody> </table>		WORKLOAD FOR ATTENDING STUDENTS			WORKLOAD FOR NON-ATTENDING STUDENTS			Hours	#	Total	Hours	#	Total	<b>Lectures</b>	3	14	42		0	0	<b>Readings</b>	3	27	81	4	33	132	<b>Presentation and Workshop</b>	9	1	9			0	<b>Wrap-up report</b>	10	1	10			0	<b>Exam preparation</b>	2	14	28	3	14	42							0	<b>TOTAL (hours)</b>			<b>170</b>			<b>174</b>	Standard effort (hours)			175			175
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<b>Assessment language</b>	English
<b>Evaluation criteria and criteria for awarding marks</b>	<p><b><i>Attending students' evaluation.</i></b></p> <p><i>The program covers the required readings <b>ONLY</b>:</i></p> <ul style="list-style-type: none"> <li>• <i>Final exam: 50%</i></li> <li>• <i>Class leadership: presentation, workshop and post-class wrap-up report: 30%</i></li> <li>• <i>Class participation (class discussion, questions, answers to "cold" questions): 20%</i></li> </ul>

**Class leadership:** During the first class, each student is assigned to a group that is in charge of one of the lectures (from L5 to L14) of the course. Each group is expected to perform the following tasks:

- a) **Key-concepts Review.** to summarize and to comment the readings marked with **(P)**;
- b) **Key-concepts Use.** to design and to manage a workshop to foster the class understanding on the topic of the day.
- c) **Wrap-up Report**

a) Key-concepts Review. The presentations assume that all the students in class have read in advance the readings. The suggested time for presenting the assigned readings is about 15' (with obvious exceptions). Slides of the presentations need to be sent to prof. Narduzzo at least two days before the class date.

To evaluate the presentations the following criteria are considered:

1. *Synthesis.* The presentation covers all the major topics introduced in all the readings.
2. *Clarity.* The presented topics are clearly explained.
3. *Connections among the readings and with other contents of this course are present and appropriate.*
4. *Time management.* The assigned time was well organized and balanced.

b) Key-concepts Use. We want to practice these concepts, to understand their analytic power, their impact on decision making. Any type of exercise/simulation/discussion that allow to understand how the key-concepts can be used is appropriate. To design the exercises/workshops you are invited to consult prof. Narduzzo in advance, during the office hours. To evaluate this task the following criteria are used:

1. *Relevance of the topic selected for the exercise/workshop.*
2. *Ability to stimulate and enable insightful reasoning on the selected topic.*
3. *Ability to involve the class.*
4. *Time management.*

**c) 'Wrap-up report:** At the end of the led class, each group writes a short document (about 2,000 words) about a selected topic, to upload to Wikipedia. It can be either an integration of an existing Wiki article, or a new one.

At the end of the led class, each group writes a short report (about 2,000 words) that summarizes the main issues (e.g. concepts, problems, phenomena) presented and discussed. This report should document the design and the implementation of the Key-concepts Use workshop. The report should be a stand-alone document (i.e. please include references and other details that makes meaningful the document).

The document should provide all the relevant references, according to standard practice.

In alternative to the report, each group may write a short document on a selected topic, to upload to Wikipedia. It can be either an integration of an existing Wiki article, or a new one. This alternative needs to be discussed with the lecturer.

Deadline for sending the document to the lecturer: **TBD.**

**Non-attending students' evaluation.**

*Non-attending students do not have to write any report or assignment. Final exam: 100%. The program covers **both required and supplementary readings** listed in this syllabus. To evaluate non-attending students' preparation, final exams for attending and non-attending students do not have exactly the same questions.*

Final exam (90-100 minutes) consists of open questions to assess both knowledge acquired and analytical competencies. A case will be made available on the Reserve Collection before the exam. Students are expected to read the case in advance, and to bring a copy of the case at the exam. Some questions assess the students' ability to use the acquired knowledge to analyze the case.

**Required and supplementary readings**

Schilling M. 2013. Strategic management of technological innovation. 4<sup>th</sup>ed. Mc Graw-Hill. **ONLY the Selected Chapters** indicated for each topic of this course. List of readings for each topic of the course is provided below. **For each topic, readings are listed in the suggested order of reading.**

***For each topic readings are listed in the suggested order of reading.***

***Innovation, innovative firms, innovation management – An introduction***  
*Why does innovation matter? How practitioners and scholar think about innovation? Why and how do organizations want to manage the innovation journey.*

- *Tidd, J., 2001. Innovation management in context: environment, organization and performance. International Journal of Management Reviews, 3(3), pp.169-183.*
- *AA.VV., 2013. Unleashing the power of innovation, PWC Report retrieved from: [http://www.pwc.com/gx/en/innovationsurvey/files/innovation\\_full\\_report.pdf](http://www.pwc.com/gx/en/innovationsurvey/files/innovation_full_report.pdf)*

***Supplementary readings:***

- *Baregheh A., Rowley J., & S. Sambrook. 2009. Towards a multidisciplinary definition of innovation. Management Decision, 47, 8, 1323-1339.*
- *Garud R., Tuertscher P. & A.H. Van de Ven. 2015. Business Innovation Processes, in Zhou, J., 2015. The Oxford Handbook of Creativity, Innovation, and Entrepreneurship. Oxford University Press, pp. 339-352.*

***Additionally suggested readings:***

- *A McKinsey Global Survey. 2007. How companies approach innovation, The McKinsey Quarterly.*
- *A McKinsey Global Survey. 2010. Innovation and commercialization, The McKinsey Quarterly.*

***Innovation: background and conceptualizations***

*In this class we introduce and discuss standard definitions, conceptualizations and models. The Kodak case assigned for this class will be used to comment and discuss the concepts. In general we are going to refer to the cases also in later classes: so, do not forget them and bring your copy of the cases in next classes.*

- *Schilling 2013, Chapter 3.*

***Supplementary readings:***

- *Adner, R., & Kapoor, R. 2015. Innovation ecosystems and the pace of substitution: Re-examining technology S-curves. Strategic Management Journal.*

***Innovation management: problems, myths, traps***

*This class offers a problematic perspective to frame innovation management and to provide a model for further theorizing.*

- *Van de Ven A.H. 1986. Central Problems in the Management of Innovation. Management Science, 32, 5, 590-607. (P)*
- *Bagno, R.B., Salerno, M.S. and da Silva, D.O., 2017. Models with graphical representation for innovation management: a literature review. R&D Management, 47(4), pp.637-653.*

***Supplementary readings:***

- *Williams T.M. 1999. The need for new paradigms for complex projects, International Journal of Project Management Vol. 17, No. 5, pp. 269-273. (P)*
- *Birkinshaw J., Bouquet C., & J.L. Barsoux. 2011. The 5 Myths of Innovation. MIT Sloan Management Review, 52, 2, 43-50.*

***Additionally suggested readings:***

- *Anderson, P. 1999. Perspective: Complexity theory and organization science. Organization science, 10(3), pp.216-232.*

***Laboratory on Complexity and Innovation Dynamics ()***

*We introduce Agent-based modeling (ABM) to explore and reflect on the complex dynamics that characterizes the management of innovation. We start analyzing the interdependencies, then we discuss the diffusion processes.*

*Together with Siavash Farahbakhsh, PhD Candidate*

***Managing Innovation in a Pareto World ()***

*We discuss how managing innovation changes when firms make decisions in a world where most of the phenomena display "power-law" distributions. How does this affect business and management decisions on innovation?*

- *Andriani, P. and Mckelvey, B., 2011. Managing in a Pareto world calls for new thinking. M@ n@ gement, 14(2), pp.89-118.*

***Supplementary readings:***

- *Snowden, D., 2003. Innovation as an objective of knowledge management. Part I: The landscape of management. Knowledge Management Research & Practice, 1(2), pp.113-119.*

***Managing innovation as exaptation ()***

*Innovation management through an evolutionary perspective. Innovation management consists of managing a system of interdependent and evolving components. Innovation as exaptation will be discussed.*

- *Adner R., & D. A. Levinthal. 2002. The Emergence of Emerging Technologies. California Management Review, 45, 1, 50-66. (P)*
- *Cattani G. 2006. Technological pre-adaptation, speciation and the emergence of new technologies: How Corning invented and developed fiber optics. Industrial and Corporate Change, 15, 2, 285-318.*

***Supplementary readings:***

- *Abernathy W. J., & J. M. Utterback. 1978. Patterns of industrial innovation. Technology Review, 80, 40-47.*

***Additionally suggested readings:***

- *Bonifati G., 2010. 'More is different', exaptation and uncertainty: three foundational concepts for a complexity theory of innovation, Economics of Innovation and New Technology, 19:8, 743-760,*

### **Innovation management: techniques and tools ()**

*We review a repertoire of tools traditionally associated to innovation management. We discuss to what extent they cope with the problems introduced in Class 3. In particular, we wish to focus on those tools that deal with complexity and uncertainty.*

- Hidalgo A., & Albors J. 2008. Innovation management techniques and tools: a review from theory and practice. *R&D Management*, 38, 2, 113-127. **(P)**
- Ilevbare, I.M., Probert, D. and Phaal, R., 2013. A review of TRIZ, and its benefits and challenges in practice. *Technovation*, 33, 2, pp.30-37.

#### **Additionally suggested readings:**

- Phaal R., Farrukh C.J.P., & Probert D.R. 2006. Technology management tools: concept, development and application. *Technovation*, 26, 336–344.

### **Design Thinking ()**

*This approach to innovation combines creative and analytical approaches, and requires collaboration across disciplines. This process—which has been called design thinking—draws on methods from engineering and design, and combines them with ideas from the arts, tools from the social sciences, and insights from the business world.*

- Brown T. 2008. Design Thinking, *Harvard Business Review*, June, 1-11. **(P)**

#### **Supplementary readings**

- Fraser H. 2006. Turning Design Thinking into Design Doing, *Rotman Magazine*, Spring/Summer, 24-29.
- Brown T., & J. Wyatt. 2010. Design Thinking for Social Innovation, *Stanford Social Innovation Review*, Winter, 30-35.
- [https://dschool.stanford.edu/groups/designresources/wiki/de476/Project\\_Topic\\_Wallet\\_GiftGiving\\_or\\_other.html](https://dschool.stanford.edu/groups/designresources/wiki/de476/Project_Topic_Wallet_GiftGiving_or_other.html)
- <http://dschool.stanford.edu/use-our-methods>

### **Innovation management measurement ()**

*Measuring innovation is a tricky issue. On the one hand, there is a need to assess the impact of innovation; on the other hand, the complexity of the phenomenon suggests avoiding simplistic solutions. The most common measures of innovation look at input (e.g. intensity of R&D investment) or output (e.g. number of patents). The approach proposed for this class is radically different and is grounded on the conceptualization of innovation as a process.*

- Gamal D. 2011. How to measure organizational innovativeness? An overview of Innovation framework and Innovation audit. *TIEC*. **(P)**

#### **Additionally suggested readings:**

- Adams R., J. Bessant, & R. Phelps. 2006. Innovation management measurement: A review, *International Journal of Management Review*, 8, 1, 21-47.
- Morris L. 2011. Innovation metrics. In *Innovation Master Plan: the CEO's guide to innovation*. [www.innovationlabs.com](http://www.innovationlabs.com)

### **Management innovation ()**

*Management innovation is the invention and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals.*

- Hamel G. 2006. *The Why, What and How of Management of Innovation*.

*Harvard Business Review, February, 72-84. (P)*

**Supplementary readings:**

- Damanpour F., & Aravind D. 2012. *Managerial Innovation: Conceptions, Processes, and Antecedents, Management and Organization Review, 8, 2, 423-454.*

**Additionally suggested readings:**

- Grant R. M. 2008. *The Future of Management: Where is Gary Hamel Leading Us?, Long Range Planning, 41, 469-482.*
- Wu L-Y. 2010. *Which companies should implement management innovation? A commentary essay. Journal of Business Research. 63, 321-323.*

**Managing innovation through experimentation**

*Innovation is conceived as a process of trial and error. Its effectiveness depends on the organizations' ability to adapt to this logics/practice.*

- Thomke S. 2001. *Enlightened experimentation: The new imperative for innovation. Harvard Bus. Rev. 79(2) 66-75. (P)*
- Edmonson A.C. 2011. *Strategies For Learning From Failure. Harvard Business Review. April 48-55. (P)*

**Managing innovation as designing**

*How can ideas from design inform and improve management? And, how can designing complement analyzing and deciding as core managerial skills?*

- Collopy, F. ed., 2004. *Managing as designing (pp. 164-168). Redwood City, CA: Stanford University Press. (P)*
- Weick, K.E., 2004. *Designing for thrownness. Managing as designing, pp.74-78. (P)*

**Supplementary readings**

- Collopy, F. ed., 2004. *Managing as designing (pp. 164-168). Redwood City, CA: Stanford University Press.*

**Building innovative organizations ()**

*Firms may adopt organizational arrangements that are support innovation. Through the concepts of organizational ambidexterity and organizational bricolage we discuss how firms may combine exploration and exploitation.*

- Schilling 2013. **Chapter 10.**
- Birkinshaw J., C. Gibson. 2004. *Building Ambidexterity Into an Organization. MIT Sloan Management Review, Summer, 47-55. (P)*

**Supplementary readings**

- Bock, A. J., Opsahl, T., George, G. & Gann, D. C. 2012. *The effects of culture and structure on strategic flexibility during business model innovation. Journal of Management Studies, 49(2): 279-305.*

**Additionally suggested readings:**

- Lam A. 2004. *Organizational Innovation. In Fagerberg J., Mowery D., and R.R. Nelson. Handbook of Innovation. Oxford University Press.*
- Pina e Cunha M., Vieira da Cunha J., & K. Kamoche. 1999. *Organizational improvisation: what, when, how and why. International Journal of Management Reviews, 1, 3, 299-341.*
- Pina e Cunha M. 2005. *Bricolage in Organizations. FEUNL Working Paper #474.*

**Managing Technological Innovation ()**

*Managing innovation often implies creation, development, adoption and change of*

technology. This is particularly relevant when technology is perceived as the driver of the innovation. We discuss perspectives and problems of technology based innovation from the management perspective.

- Boliva-Ramos, M.T., Garcia-Morales, V.J., & Garcia-Sanchez, E. 2012. Technological distinctive competencies and organizational learning: Effects on organizational innovation to improve firm performance. *Journal of Engineering and Technology Management*, 29: 331-357. **(P)**
- Jain, A. 2013. Learning by Doing and the Locus of Innovative Capability in Biotechnology Research. *Organization Science*, 24(6): 1683-1700.

**Additional suggested readings:**

- Ahuja G., Lampert C. M. & V. Tandon. 2008. Moving Beyond Schumpeter: Management Research on the Determinants of Technological Innovation, *The Academy of Management Annals*, 2:1, 1-98, DOI: 10.1080/19416520802211446.

**Management of Open Innovation ( )**

To innovate, firms often need to draw from a wide number of different sources of knowledge from outside their organization. At the same time as firms need to be open to external sources, they also need to be focused on capturing returns to their innovative ideas. This gives rise to a paradox of openness - the creation of innovations often requires openness and commercialization of innovations requires appropriability.

- Lichtenthaler U. 2011. Open Innovation: Past Research, Current Debates, and Future Directions. *The Academy of Management Perspectives*, 25:1 75-93. **(P)**
- Spithoven, A., Clarysse, B. and Knockaert, M., 2011. Building absorptive capacity to organise inbound open innovation in traditional industries. *Technovation*, 31(1), pp.10-21.

**Supplementary readings:**

- Nambisan S., & M. Sawhney. 2011. Orchestration processes in network-centric innovation: Evidence from the field. *The Academy of Management Perspectives*, 25(3), 40-57.
- Garriga, H., von Krogh, G., & Spaeth, S. 2013. How constraints and knowledge impact open innovation. *Strategic Management Journal*, 34(9): 1134-1144.

**Additionally suggested readings:**

- Adner R. 2006. Match your innovation strategy to your innovation ecosystem. *Harvard business review*, 84(4), 98.
- van de Vrande V., J. P. J. de Jong, W. Vanhaverberke, & M. de Rochemont. 2009. Open innovation in SMEs: Trends, motives and managerial challenges, *Technovation*, 29, 423-437.
- Felin, T., & Zenger, T. R. 2014. Closed or open innovation? Problem solving and the governance choice. *Research Policy*, 43(5): 914-925.

**Open Innovation as an eco-system. A ABM approach**

- Gilbert, N., Ahrweiler, P. and Pyka, A., 2007. Learning in innovation networks: Some simulation experiments. *Physica A: Statistical Mechanics and its Applications*, 378(1), pp.100-109.

**Additionally suggested readings:**

- Gilbert, N., Ahrweiler, P. and Pyka, A. eds., 2014. *Simulating knowledge dynamics in innovation networks*. Heidelberg: Springer.