

**MIT Sloan School of Management**  
**Spring 2017 H1**  
**15.828 Product Management**  
*tentative syllabus, no circulation*

**Instructor for Sections A & B**

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**Class Time, Location, and Website**

Section A: 1:00-2:30pm MWF, E51-372  
Section B: 2:30-4:00pm MWF, E51-372

Week	Monday	Wednesday	Friday
1		<u>Feb-08 Lecture</u> <ul style="list-style-type: none"> <li>• Overview</li> <li>• Framework</li> </ul>	<u>Feb-10 Project</u> <ul style="list-style-type: none"> <li>• Project Introduction</li> <li>• PayPal, BSO, and more</li> </ul>
OPPORTUNITY IDENTIFICATION			
2	<u>Feb-13 Game</u> Steve Gaskin and Patty Yanes (AMS) “IDEALIST” A Brainstorming Game	<u>Feb-15 Lecture</u> <ul style="list-style-type: none"> <li>• Market Segmentation</li> <li>• Observational Research</li> <li>• Design Thinking</li> </ul>	<u>Feb-17 Lecture</u> <ul style="list-style-type: none"> <li>• Voice of Customers</li> <li>• Ideation Template</li> </ul>
DESIGN			
3	<u>Feb-21 (Tue) Guest Lecture</u> “Innovation opportunity identification: tools for maximizing ROI.” Jeff Hovis (Product Genesis)	<u>Feb-22 Lecture</u> <ul style="list-style-type: none"> <li>• Positioning</li> <li>• Questionnaire Design</li> <li>• Open Innovation</li> </ul>	<u>Feb-24 Lecture</u> <ul style="list-style-type: none"> <li>• Conjoint Analysis</li> <li>• Case Study: “VerTerra”</li> </ul>
TESTING			
4	<u>Feb-27 Lecture</u> <ul style="list-style-type: none"> <li>• Concept Testing</li> <li>• Prediction Market</li> <li>• Premarket Forecasting</li> </ul>	<u>Mar-01 Lecture</u> <ul style="list-style-type: none"> <li>• Design of Experiments</li> <li>• User Testing</li> <li>• Tutorial on A/B Testing</li> </ul>	<u>Mar-03 Guest Lecture</u> “Fast & Furious: Startup Product Management” Sam Clemens (Insight Squared)
LAUNCH			
5	<u>Mar-06 Lecture</u> <ul style="list-style-type: none"> <li>• Pricing Decision</li> <li>• Channel Management</li> </ul>	<u>Mar-08 Lecture</u> <ul style="list-style-type: none"> <li>• Advertising Media Selection</li> <li>• SEO, SEM, Display, Social</li> </ul>	<u>Mar-10 Guest Lecture</u> “New Product Factory Launch Strategy” Milo Werner (FitBit)
6	<u>Mar-13 Guest Lecture</u> TBD Gummi Hafsteinsson (Google)	<u>Mar-15 Guest Lecture</u> TBD	<u>Mar-17 Project</u> <ul style="list-style-type: none"> <li>• Final Presentation</li> </ul>

## Overview of the Course

In this course we study the process of design and marketing of new products or services. Particularly, we deal with the challenge of bringing to market elegant and efficient solutions to strong customer needs. This challenge is relevant whether you work for a startup or a large company, whether you sell products or services, and whether your customers are individual consumers or companies. We structure our learning around the following basic steps of a new product development process:

1. Opportunity identification
2. Design
3. Testing
4. Launch

We will use lectures, guest speakers and a student project to explore these issues.

- Lectures will include frameworks, state-of-the-art methods, combined with examples, cases and tutorials.
- Speakers will represent wisdom acquired over many years of practice in product management across different functions and industries.
- The student project fosters an interdisciplinary team-based, experiential learning exercise. You will take on the challenge of trying to develop a new product (feature) during the six weeks! You will apply the frameworks and methods covered in the course to progress through the product development process. You can select and work on a project offered by a set of companies, or alternatively, you may propose your own project (e.g., startup idea).

## Course Project

You will form a team of 4-5, and start working on a project from the end of the first week. For the second, third and fourth week, you will complete one module for your project each week. Specifically, you are expected to complete the following tasks for each module by applying the concepts and tools covered in the lectures:

1. Opportunity identification: define and segment market, generate new ideas, and conduct observational research and customer interviews to identify customer needs.
2. Design: develop concepts (including perceptual maps, positioning statement, product specification, and price), collect market research data and if applicable, conduct conjoint analysis to refine the concept.
3. Testing: run concept testing and potentially A/B testing on feature designs to further refine and improve the concept.

We do not have tasks for you to complete for the launch module, because it is usually not easy to come up with a realistic launch plan during such a short timeframe. Companies will also have their specific tasks for you too. You should accommodate their objectives while at the same time complete all the listed tasks above. This will give you a balanced experience of learning and practicing. You will have the last two weeks (fifth and sixth) to finish the project, and prepare presentation slides. Your presentations will be judged by the corresponding company representatives, some guest speakers, and me. Your final deliverable for the project will be a deck of slides,

with the appendix containing details of your market research and analyses, and how you applied the tools covered in the course to your project.

## Mentoring

Each team can meet with me for 30 minutes to discuss its project once a week, from the second to the fifth week. Mentoring is encouraged but not mandatory. It does not affect your grade directly. If you are interested, be sure all your team members can find a common time on Thursday. You can sign up on Stellar.

## Grading

### *Class participation:*

Class participation	25%
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### *Term project:*

Deliverable on opportunity identification	10%
Deliverable on design	10%
Deliverable on testing	10%
Project presentation	35%
Project report (a slide deck including appendix)	10%

## Connection with Other Courses

This course builds on the following concepts and tools from *15.810 Marketing Management* by John Hauser and *15.834 Marketing Strategy* by Birger Wernerfelt: targeting, segmentation, positioning, conjoint analysis, and advertising. It is great but not necessary for you to understand these concepts before the first class. *15.783J Product Design and Development* offered by Steven Eppinger in the Operations Management group is a great course, which complements with this course. It focuses more on designing physical products. It covers industrial design, concept generation, and prototyping, which are important but not covered in this course. This year, the OM group also has a new temporary offering *15.S72 Introduction to Product Management*. You will need to figure out what it is about by yourself.

If you get interested in some specific topics in the course, the following courses offered by the Marketing group will give you more understanding. *15.821 Listening to the Customer* by Drazen Prelec is mostly related to the “opportunity identification” and “design” modules. It covers in great details about interview techniques, focus groups, gathering and analysis of qualitative information from consumers. *15.841 Marketing Analytics* by Dean Eckles covers comprehensive and more advanced quantitative methods in measuring consumer needs and preference, experiment design, and analysis of observational data. *15.570 Digital Marketing and Social Media Analysis* by Sinan Aral covers social media marketing in both design and launch stage, and experiment design. *15.818 Pricing* by Catherine Tucker is mostly related to the “launch” module.

There is no prerequisite to this course. This course is open to all students enrolled at MIT.

## Participating in Class

You learn by doing. Class participation matters. Comments and questions relevant to the material and which build upon the discussion are rewarded. Lengthy discourses on extraneous material and repetition are not. Your classmates are counting on your insight. I encourage you to challenge me and other students, but politely. I may express an “opinion” just to encourage challenge, or we may follow a thread to understand a blind alley.

There is only so much “air time.” If you raise your hand and I do not call on you, it might be that I am giving someone else a chance because you have already displayed high quality. Don’t wor-

ry; we note that your hand was raised. Because quality is subjective we use two independent measures. The TA grades class participation in real time. Independently, I grade class participation after each class. Please remember to bring your name cards to class. This is an exercise in branding – you want me, the TA, and your colleagues to associate your insights with you, the brand.

Class attendance is mandatory. However, emergencies do happen. If you must miss a class, warn the TA or me on the day prior to class. Absences are automatically excused for health, childbirth, military service, or bereavement. Remember that you can get credit for class participation only if you are actually in the class. The CDO and the MBA office are careful not to schedule activities that conflict with class time.

## **Intellectual Property Considerations**

The process of innovation and product development involves the generation and evaluation of many ideas. Ideas generated and evaluated as part of the course are assumed to be the property of the submitter. Students are expected to be respectful of the intellectual property of their classmates. Unless derived from company-sponsored research or University-funded activities, any intellectual property created as a part of this course is assumed to belong to the student(s) that created it.

## **Detailed Schedule (*including* lecture topics, readings, and [deliverables](#))**

### **1. Introduction**

Feb-08 Wednesday

**Topic:** (1) Course overview. (2) Overview of new product development processes.

**Recommended reading:**

Blank, Steve. "Why the lean start-up changes everything." *Harvard Business Review* 91.5 (2013): 63-72.

Feb-10 Friday

**Topic:** Introduction of projects by company representatives.

**Deliverable #0 due:**

Propose team members, team name, and name of team lead. Choose a project topic and sign up your project on Stellar. Sign up your team profile on Stellar. If you have trouble finding a team, talk to the TA.

### **2. Opportunity identification**

Feb-13 Monday

**Bring your laptop to play a game!**

**Topic:** "IDEALYST Brainstorming Game."

**Guest speakers:** Steve Gaskin and Patty Yanes

**Bio:** Steve is a principal at Applied Marketing Science. With more than 30 years of experience, he conducts primary and secondary quantitative research for the consumer packaged goods, automotive, high-tech, telecommunications, pharmaceutical, financial services and other industries. Steve also serves as an expert witness for legal cases, with a specialty in conjoint analysis for class action. Steve has developed proprietary models for measuring the sales lift from trade promotions at the store-item level, as well as models for household-level targeting for major consumer packaged goods manufacturers and grocery chains. He also implemented the first commercial application of Fastpace, a new adaptive conjoint analysis technique developed as part of MIT's Virtual Customer Initiative. The journal article describing FastPace was published in *Marketing Science* and won the John D. C. Little Award for Best Marketing Science Paper for 2003. At home in Boston, Steve is chairman of his town's Conservation Commission, president of the Asian Art Society of New England and serves on the Visiting Committee for Asian Art at the Boston Museum of Fine Arts.

Patricia Yanes is a senior manager at Applied Marketing Science with more than five years of qualitative and quantitative experience in market research. In her role, Patty has successfully managed client initiatives focused on Voice of the Customer, conjoint analysis, segmentation, QFD, ethnography, concept development, branding research, and client presentation design. She has worked with a variety of different types of clients in industries such as insurance, retail, medical devices, high tech products, industrial services, heavy equipment and many others. Patty holds a B.S. in business management with a concentration in marketing and finance from Boston College's Carroll School of Management, graduating Cum Laude. She is currently pursuing an MBA focusing in marketing from Bentley University.

**Recommended reading:**

Toubia, Olivier. "Idea generation, creativity, and incentives." *Marketing Science* 25.5 (2006): 411-425.

Feb-15 Wednesday

**Topic:** (1) Market definition and segmentation. (2) Observational research. (3) Design thinking.

**Recommended readings:**

Christensen, Clayton M., Scott Cook, and Taddy Hall. "Marketing malpractice." *Harvard Business Review* 83.12 (2005): 74-83.

Feb-17 Friday

**Topic:** (1) Voice of customers and recent developments. (2) Ideation template.

**Recommended readings:**

Griffin, Abbie, and John R. Hauser. "The voice of the customer." *Marketing science* 12.1 (1993): 1-27.

Urban, Glen L., and John R. Hauser. "Listening in" to find and explore new combinations of customer needs." *Journal of Marketing* 68.2 (2004): 72-87.

Goldenberg, Jacob, et al. "Finding your innovation sweet spot." *Harvard Business Review* 81.3 (2003): 120-129.

Feb-21 Tuesday

**Topic:** “Innovation opportunity identification: tools for maximizing ROI.”

**Guest speaker:** Jeff Hovis

**Bio:** Jeff Hovis is Managing Principal at Product Genesis, an MIT spin-out strategic innovation management consulting firm. Jeff is responsible for executive-level interface for global innovation strategy client programs on six continents. Jeff serves as a senior advisor to Global 2000 CINO’s, CMOs and CTOs on strategic innovation and new business creation activities. Before moving into strategic consulting more than fifteen years ago, Jeff served as Senior Vice President at Thermo Electron (now Thermo Fisher Scientific), where he managed multi-continent business units, and created strategic innovation, technical and marketing partnerships in North and South America, Europe and Asia. Jeff has extensive experience in strategic marketing and technology landscape projections for advanced materials, industrial, commercial, medical, life sciences, healthcare and consumer products, and is involved in all aspects of innovation strategy development, ranging from trend and convergence projections, market analysis, market opportunity identification and business case synthesis, to platform, roadmap, product, service, and solution requirements generation.

### 3. Design

Feb-22 Wednesday

**Topic:** (1) Core Benefit Proposition, perceptual maps and positioning. (2) Questionnaire design. (3) Open innovation.

**Recommended readings [optional]:**

Huston, Larry, and Nabil Sakkab. "Connect and develop." *Harvard Business Review* 84.3 (2006): 58-66.

Payne, Stanley Le Baron. *The Art of Asking Questions: Studies in Public Opinion*, 3. Princeton University Press, 2014.

**Deliverable #1 due:**

(1) Read VerTerra case, and send TA your answer to the following question:

For the team’s draft of questionnaire, which modifications, if any, would you recommend? Your suggestions may relate to the format, the content, or any other aspect of the questionnaire.

Also, think about (no need to write down) how to analyze the questionnaire responses. What exactly can you learn from the responses.

(2) *Opportunity identification:*

- a. Define market and segmentations.
- b. Generate new ideas.
- c. Conduct customer interviews/ surveys.
- d. Screen your opportunities and ideas to select the best ones. You can use idea score sheet on Stellar.

Feb-24 Friday

**Topic:** Conjoint analysis.

**Required reading:** Toubia, Olivier, "Columbia Business School Case: VerTerra."

**Recommended reading [optional]:**

Ofek, Elie, and Olivier Toubia, "Conjoint Analysis: Online Tutorial." via Harvard Business School Press.

#### **4. Testing**

Feb-27 Monday

**Topic:** (1) Concept testing. (2) Prediction market and its application in product management. (3) Premarket forecasting.

**Recommended readings [optional]:**

Cowgill, Bo, and Eric Zitzewitz. "Corporate prediction markets: Evidence from Google, Ford, and Firm X." *The Review of Economic Studies* 82.4 (2015): 1309-1341.

Urban, Glen L., Bruce D. Weinberg, and John R. Hauser. "Premarket forecasting of really-new products." *The Journal of Marketing* (1996): 47-60.

Mar-01 Wednesday

**Topic:** (1) Design of experiments. (2) A/B testing.

**Recommended readings [optional]:**

Thomke, Stefan, and Jim Manzi. "The discipline of business experimentation." *Harvard Business Review* 92.12 (2014): 70-9.

Christian, Brian. "The A/B test: Inside the technology that's changing the rules of business." *Wired Magazine* 25 (2012).

#### **Deliverable #2 due:**

*Design:* Develop one (or more) concept(s) for each opportunity/idea identified in the previous stage. For each concept provide:

- a. At least one perceptual map.
- b. A positioning statement.
- c. Detailed features and specification.
- d. Price (or price range, if applicable).

Collect marketing research data and if applicable, apply conjoint analysis (potentially together with focus groups) at this stage to refine your concepts.

Mar-03 Friday

**Topic:** "Fast & Furious: Startup Product Management."

**Guest speaker:** Sam Clemens

**Bio:** Sam is the Chief Product Officer at InsightSquared. Before InsightSquared, Sam was VP Product at HubSpot, VP Product at BzzAgent, and on the initial team at Elance.com. His background also includes venture capital with Greylock Partners, the Algorithms group at Amazon.com, and management consulting with Booz Allen Hamilton. Sam has an MBA from Harvard Business School and a B.S. in Applied Math from Yale. He serves as an advisory Entrepreneur-In-Residence at HBS and is a guest lecturer on product management at both HBS and MIT Sloan. In his off time he dives shipwrecks in the New England area.

## 5. Launch

Mar-06 Monday

Mar-08 Wednesday

### **Recommended readings [optional]:**

Sunil Gupta, and Joseph Davin. "Marketing reading: Digital Marketing." Harvard Business School Press Core Curriculum Readings (2015).

Words in a row. "SEO tutorial" (<https://www.wordsinarow.com/seo.html>)

Hoffman, Donna L., and Marek Fodor. "Can you measure the ROI of your social media marketing." *MIT Sloan Management Review* 52.1 (2010): 41-49.

Mar-10 Friday

**Topic:** "New Product Factory Launch Strategy."

**Guest speaker:** Milo Werner

**Bio:** Milo Werner is the Director of New Product Introduction for Fitbit, where she is responsible for the successful operational launch of all new products. Prior to Fitbit, Milo led New Product Introduction for Tesla Motors, where she managed all product launches into the Tesla factories. Key projects of hers included Dual Motor, Autopilot, European Model S, Right Hand Drive as well as powertrains for the Model S, Toyota Rav4, and Daimler B-class. She played an instrumental role in shaping Tesla Motor's launch strategy by integrating product development with launch operations to reduce product time to market. In 2013, US Department of Energy and MIT recognized Milo for her leadership and accomplishments in the area of innovation and technology development. Milo lectures on New Product Introduction strategy including at APRA-E, MIT, UC Berkeley and University of Vermont. In 2014, MIT professor Charles Fine and Werner co-authored a case on start-up operations strategy focused on the nail it then scale it methodology.

### **Deliverable #3 due:**

*Testing:* Use concept testing (potentially together with focus groups) to select the best concept. [Optional] Design an A/B testing to further refine and improve the selected concept.

## 6. Conclusion

Mar-13 Monday

**Topic:** "Designing and executing your go-to-market plan."

**Guest speaker:** Lucia Kamm

**Bio:**

Mar-15 Wednesday

**Topic:** TBD

**Guest speaker:** TBD

**Bio:**

Mar-17 Friday

**Project presentations.**

**Deliverable #4 due:**

(1) Student project presentations.

(2) Project report is due from all teams Mar-19 Sunday before 5:00PM. Your project report should be a deck of slides, including your final presentation, and the appendix, which contains details of your market research / analyses, and how you applied the tools covered in the course to your project. It should be clear enough so that people can replicate all your work after reading your report.