

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

| Date                 | Topic  | Read/Prepare   |
|----------------------|--|--|
| Session 1<br>Sep. 17 | Why Do Innovation and Product Development Matter?<br><i>Team assignments</i><br><i>Logistics</i><br><i>Design Exercise</i> | Ulrich and Eppinger 6th Ed., Chapter 1<br>"Ideas Coming Down the Track" ( <i>Camino</i> )<br>"Rescued by Design" ( <i>Camino</i> )<br>"Treating Addiction with a Device" ( <i>Camino</i> ) |
| Session 2<br>Sep. 19 | Product Development Methodologies and Organization<br><i>Complex development programs</i>                                  | U&E, Chapter 2<br>"Scaling Agile at Spotify" ( <i>Camino</i> )<br><i>Assignment #1 Due: Bug List (Individual)</i>  |
| Session 3<br>Sep. 24 | Identifying Market Opportunities   | U&E, Chapter 3<br>"In A Graying Population . . ." ( <i>Camino</i> )<br><i>Project teams formed</i>   |
| Session 4<br>Sep. 26 | Product Planning<br><i>Creating TAM and SAM</i>  | U&E, Chapter 4<br>"Bionic Eyes Offering Sight . . ." ( <i>Camino</i> )<br>"Backpack Makers Rethink . . ." ( <i>Camino</i> )  |
| Session 5<br>Oct. 1  | <i>Market Opportunity Presentations</i>  | <i>Assignment #2 Due: Market Opportunity</i>   |
| Session 6<br>Oct. 3  | User Centered Design Research<br><i>Guest speaker: Gary Waymire, Director of Innovation Consulting, Kaiser Permanente</i>  | "Innovation as a Learning Process: Embedding Design Thinking" ( <i>Camino</i> )  |
| Session 7<br>Oct. 8  | Understanding Customer and User Needs<br><i>Creating the interview guide</i>   | Read Ulrich and Eppinger, Chapter 5<br>Watch IDEO video Part 1 ( <i>Camino</i> )<br><i>Assignment #3 Due: Innovation Analysis (Individual)</i>   |
| Session 8<br>Oct. 10 | Prioritizing User Needs<br>Product Specifications<br><i>QFD chocolate chip exercise</i>                                    | U&E Chapter 6<br>Biomimicry videos ( <i>Camino</i> )   |
| Session 9<br>Oct. 15 | Ideation and Concept Development<br><i>How might we . . . ?</i>  | U&E, Chapter 7<br>"Finding Your Innovation Sweet Spot" ( <i>Camino</i> )<br>Watch IDEO video Part 2 ( <i>Camino</i> )  |

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

| Date                  | Topic   | Read/Prepare   |
|-----------------------|---|--|
| Session 10<br>Oct. 17 | Concept Selection and Testing<br>Product Architecture<br><i>Functional decomposition</i>  | U&E, Chapters 8 & 10<br>"Amazon's Living Lab: Reimagining Retail on Seattle Streets" ( <i>Camino</i> )<br><i>Assignment #4 Due: Customer and User Needs (Team)</i>   |
| Session 11<br>Oct. 22 | Prototyping/Simulation<br>Design Validation<br><i>Concept selection matrices.</i>   | U&E, Chapter 14<br>Boeing 777 Wing Test video ( <i>Camino</i> )<br>". . . Virgin Galactic Crash" ( <i>Camino</i> )   |
| Session 12<br>Oct. 24 | Design for Manufacturing/Test<br>New Product Introduction<br><i>Guest speaker: Michael Keer, CEO, Product Realization Group</i> | U&E, Chapter 13  |
| Session 13<br>Oct. 29 | Industrial/User Interface Design<br>Design for the Environment<br><i>Full lifecycle design</i>                                  | U&E, Chapters 11 & 12<br>"The Secret of Apple Design" ( <i>Camino</i> )<br>"The Art of UI Prototyping" ( <i>Camino</i> )<br>"Apple's Product Development Process" ( <i>Camino</i> )  |
| Session 14<br>Oct. 31 | Product Development<br>Economics<br>Product Development Metrics<br><i>Economic tradeoff analysis</i>                            | U&E, Chapter 18 (5th Ed, Chapter 17)   |
| Session 15<br>Nov. 5  | Program Management<br><i>Guest speaker: Rachelle Vogler, Senior Program Manager, Riverbed Technologies</i>                      | U&E, Chapter 19 (5th Ed., Chapter 18)<br>"Designs Change: Deal With It!" ( <i>Camino</i> )<br>"21 Essential Strategies for Managing Virtual Teams" ( <i>Camino</i> )<br>"A Defined Process for Project Postmortem Review" ( <i>Camino</i> )<br><i>Assignment #5 Due: Concept Generation and Selection (Team)</i> |
| Session 16<br>Nov. 7  | Hands-On Prototyping<br><i>Students work on prototypes for the team project.</i>  | "Rediscover the Value of a Prototype" ( <i>Camino</i> )<br><i>Class meets in the Maker Lab.</i>  |

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

| Date                  | Topic  | Read/Prepare  |
|-----------------------|--|---|
| Session 17<br>Nov. 12 | Portfolio Management<br>Information Technology<br>Intellectual Property<br><i>Business model canvas</i>              | "Boeing's Dream, Airbus' Nightmare"<br><i>(Camino)</i><br><i>Team Assessment Due</i>  |
| Session 18<br>Nov. 14 | Building Enterprise Innovation<br>Open Innovation<br>Frugal Innovation   | "Inside Google's Moonshot Factory"<br><i>(Camino)</i><br>"ZPM Espresso . . ." <i>(Camino)</i><br>"Innovation Within Reach" <i>(Camino)</i><br>Wikipedia - Open Innovation <i>(Camino)</i> |
| Session 19<br>Nov. 26 | Software Development<br><i>Guest speaker: Paul Miller,</i><br><i>Software Engineering Director,</i><br><i>NetApp</i> |   |
| Session 20<br>Nov. 28 | Case study: Le Petit Chef  | Read HBR case "Le Petit Chef"<br><i>Assignment #6 Due: Design Notebook</i>  |
| Dec. 3                | <i>Final Presentations</i>   | <i>Assignment #7 Due: Product Development Proposal with Financial Analysis (Team)</i>   |

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

**Summary Description and Learning Objectives**

OMIS 3390 introduces students to the methods companies use to develop and launch new products and services. New product development is a challenging, rewarding activity that can make the difference between success or failure for a company, especially in technology-based industries. Student teams will develop a new product or service applying design thinking techniques. Students will also learn the sequence of activities needed to successfully develop and launch a new product or service; understand how the different functions and roles in product development interrelate and work together; learn how to balance strategic and tactical activities in successful product development; develop a better understanding of how to determine and satisfy customer needs; and understand the financial aspects of product development.

Upon successful completion of the course, students will be able to:

- Understand and apply the proven methodologies (Phase/Gate, Agile, etc.) used for developing hardware and software products.
- Manage a new product or service development program through an understanding of what role each function plays in that activity.
- Employ the tools and techniques necessary to take an idea for a new product or service through to funding and deployment, whether inside a company or as an independent venture.
- Apply design thinking techniques to any new product or service development effort.
- Build a financial model for a new product or service and use economic tradeoff analysis to guide program management tradeoff decisions.
- Understand the interaction between new product and service development and company strategy, organization, information technology and finance.

**Reading Materials**

The primary reading material for the class is the textbook Product Design and Development (Sixth Edition) by Karl Ulrich and Steven Eppinger. (The Fifth Edition is also acceptable.) Additional readings and videos are available on Camino. There is a single HBR case study.

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

**Grading**

This is a learning-by-doing class that simulates a real product development environment. The team project is a key component of the work and hence of the overall grade. There are four team assignments to be handed in, including two presentations. It is expected that all of the team members will have presented by the end of the course. There are four individual assignments and one brief online team assessment. There is no final exam.

This is intended to be a participatory class. I expect you to be prepared for discussions by having completed textbook or case readings and reviewed the reading questions in Camino. Course participation accounts for 10% of the overall grade. If you cannot attend a class due to illness or business travel, please let me know in advance.

Group presentations and assignments: 55%  
Individual assignments: 35%  
Course participation: 10%

**Grading Philosophy**

This is an applied class teaching practical skills and techniques for developing new products. Product development is an activity filled with uncertainty and tradeoffs, one that rewards intelligent risk-taking. There are rarely right-or-wrong answers in product development, merely tradeoffs.

I am looking for you to apply the skills and techniques covered in the textbook, lectures, and readings to your projects. I am looking for creativity and applied thinking in your work, rather than right or wrong answers. This means there is naturally some subjectivity to my grading. I will do the best I can to support my grading with comments on what I did or did not like about your work.

Aggregate scores will earn course grades according to the following cutoffs:

|          |    |
|----------|----|
| 93 – 100 | A  |
| 90 – 92  | A- |
| 87 – 89  | B+ |
| 83 – 86  | B  |
| 80 – 82  | B- |
| 77 – 79  | C+ |
| 73 – 76  | C  |
| 70 – 72  | C- |
| 67 – 69  | D+ |
| 63 – 66  | D  |
| 60 – 62  | D- |

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

**Team Project**

In this course, you will be learning the activities of new product development through a team project. Your team will identify a market opportunity, interview and observe potential users, generate product requirements, develop product concepts, and prepare a detailed business analysis for the product. You will do this in a ten-week quarter. The assignments involved in this project constitute the greatest percentage of your overall grade. Students will be grouped in teams of four or five people.

Team assignments will vary from text documents to financial spreadsheets to copies of a presentation delivered in class. You will hand in one assignment per team, and all team members will receive the same grade. The final presentation simulates a VC panel or company “investment approval” review in front of outside experts.

In grading your projects, I am looking for how well you apply the techniques taught in the course:

- How well have you identified the market opportunity, developed an understanding of customer and user needs, and assessed the competitive landscape?
- Have you demonstrated creativity in developing product concepts and applied rigor in choosing a final concept that meets customer and user needs?
- How comprehensive and realistic are your financial and go to market plans, including identification of the initial target market, production, pricing, and communication strategies?
- How effectively do you “pitch” the concept to your classmates and reviewers during the final presentation?

It is important to seek help if your team is stuck or has questions. I am available anytime via email or phone to answer your questions. I am available for office hours, by appointment, prior to class. There is no penalty for seeking help. It is always better for product development teams to seek help early rather than waiting until it is too late.

I have learned through experience that your success in this project is closely related to the type of project you choose. Please follow the guidelines below:

1. Simpler is better. Because you will be doing things such as creating a costed bill of materials, drawing product concepts, and possibly building prototypes to show to potential users, you should choose a product that is relatively simple to design and build. Fewer than 10 working parts is a good rule of thumb.

2. Try to stay away from high technology. The product should require no basic technological breakthroughs. We do not have time to deal with large technological

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

uncertainties. In fact, I am more concerned that you have a specific market need in mind for your project than that you attempt to develop new technologies. Combining existing technologies in a different way is perfectly acceptable.

3. There should be a demonstrable market for your product. One good way to verify a market need is to perform a competitive review and identify existing products that try to meet the need. Your product need not be a variant of an existing product, but the market need addressed by your product should be clearly evident (i.e., you shouldn't be inventing a new market). The product does not need to have a tremendous economic potential, but should at least be an attractive opportunity for a small firm.

4. The most successful projects tend to have at least one team member with strong personal interest in and knowledge of the target market.

5. You should have access to at least three potential users of the product; even more would be better. You will need to talk with them or observe them when gathering customer requirements or reviewing product concepts.

6. Save any highly proprietary ideas for another context, as we will be open in discussing the projects in class and do not wish to be constrained by proprietary information.

Remember, the goal of this course is for you to learn about the process of product development. Most product development efforts (70-80% by various estimates) do not succeed. So if your product does not look like a breakaway success, don't worry. I am more interested in the way you got there and how you applied the techniques than the end result.

### **Individual Assignments**

There will be four individual assignments: creating a bug list, analyzing a new technology opportunity, completing a design notebook for your project, and doing an assessment of the team performance. These are not long or complex assignments and are designed to complement the major team assignments.

### **Course Participation**

Active participation in class discussions and online forums is a critical component of this course. I expect you to come fully prepared to engage in the key issues of the course material and associated readings, and to share your own work experience where relevant. Most classes will have a list of questions on the reading (posted to Camino), and I will call on students randomly to answer those questions. I will also expect you to be respectful and receptive of others' comments. Our goal throughout is to engage each other and learn, not necessarily to come up with the "right" answer.

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

Students who wish to improve their class participation grade can also share their ideas outside of the classroom by posting to Camino photos, commentaries and articles about interesting new products and services.

**Team Participation**

Your team assignment grades will be adjusted based on a peer evaluation of your contribution. Each individual is required to contribute fully to all parts of the team project. If you find that a group member is not contributing or that the chemistry is not right, please have a meeting with the rest of the group as soon as possible, arrive at a consensus and take appropriate action. Appropriate actions include informing the person and giving them a chance to change things. Clear and timely communication is the key. Non-performers will receive lower grades than their teammates.

**Faculty**

Jonathan Propp is President of Red House, an innovation and new product development consulting firm. He is a certified Scrum Master, New Product Development Professional (NPDP), and a former board member of the Northern California chapter of the Product Development Management Association (PDMA). He teaches New Product Development in the MBA program at Santa Clara University, and has also taught at UC Davis and UC Berkeley. His thirty years of experience in Silicon Valley includes companies such as Hewlett-Packard, Acuson, and Sun Microsystems. Mr. Propp is a graduate of Harvard College and the Yale School of Management.

Contact information:

650-235-5342

[jpropp@scu.edu](mailto:jpropp@scu.edu)

Office hours by appointment, generally before class.



**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

**Honor Code**

As an institution of higher education rooted in the Jesuit tradition, Santa Clara University is committed to creating and sustaining an environment that facilitates students' academic, personal, and ethical development. This commitment balances freedom of individual choice and expression with the expectation that individual members of the community will:

- Be honest
- Demonstrate self-respect and respect for others
- Demonstrate respect for the law and University policies, procedures, and standards.

Engaging in any form of academic dishonesty, such as plagiarism (representing the work or ideas of others as one's own without giving proper acknowledgment), cheating (e.g., using unauthorized resources or assistance on coursework, copying the work of another person, falsifying data, sabotaging the work of others, and the unauthorized use of electronics, media, or data), or other acts generally understood to be dishonest by faculty or students in an academic context will subject the student to disciplinary action.

Every student is required to sign the honor code and adhere to its conditions.

**Academic Integrity**

The University is committed to academic excellence and integrity. All members of the university community are expected to be honest in their academic endeavors. Any form of academic dishonesty or any acts deemed to be dishonest in an academic context are subject to academic and judicial action.

It is the student's responsibility to do his/her own work and to cite sources of information, whether paraphrased or quoted. For assistance in identifying when something should be cited [please check here](#). There is zero tolerance of any breach of the Student Conduct Code. The professor maintains responsibility for assigning grades for all assignments and the course grade even if an incident is submitted to the judicial process. For more information about Santa Clara University's academic integrity pledge and resources about ensuring academic integrity in your work, see [www.scu.edu/academic-integrity](http://www.scu.edu/academic-integrity).

All research work submitted should be properly cited using APA standards. For more information and tools to assist, refer to the information available through the University Library at SCU. There are many resources available at: <https://www.scu.edu/library/>

**OMIS 3390, New Product Development**  
**Professor Jonathan Propp**  
**Fall 2018**  
**Mon/Wed 5:45 - 7:20 pm**  
**Dowd 208**

**Disabilities**

If you have a documented disability for which accommodations may be required in this class, please contact Disabilities Resources, Benson 216, [www.scu.edu/disabilities](http://www.scu.edu/disabilities), as soon as possible to discuss your needs and register for accommodations with the University. If you have already arranged accommodations through Disabilities Resources, please initiate a conversation with me about your accommodations within the first week of class. Only with verification from Disabilities Resources will accommodations be provided. For more information, you may contact Disabilities Resources at 408-554-4109.

**Accommodations for Pregnancy and Parenting**

In alignment with Title IX of the Education Amendments of 1972, and with the California Education Code, Section 66281.7, Santa Clara University provides reasonable accommodations to students who are pregnant, have recently experienced childbirth, and/or have medically related needs. Pregnant and parenting students can often arrange accommodations by working directly with their instructors, supervisors, or departments. Alternatively, a pregnant or parenting student experiencing related medical conditions may request accommodations through Disability Resources.

**Discrimination and Sexual Misconduct (Title IX)**

Santa Clara University upholds a zero-tolerance policy for discrimination, harassment and sexual misconduct. If you (or someone you know) have experienced discrimination or harassment, including sexual assault, domestic/dating violence, or stalking, I encourage you to tell someone promptly. For more information, please consult the University's Gender-Based Discrimination and [Sexual Misconduct Policy](#) or contact the University's EEO and Title IX Coordinator, Belinda Guthrie, at 408-554-3043, [bguthrie@scu.edu](mailto:bguthrie@scu.edu). Reports may be submitted online through the [Office of Student Life](#) or anonymously through [Ethicspoint](http://Ethicspoint.com), [www.ethicspoint.com](http://www.ethicspoint.com).