

INNOVATE USING DESIGN THINKING

Block Week/Format:	May 3 rd -7 th , 2021, Online format (note: student teams have the option to meet with the faculty in-person from 4:30pm to 6:00pm every day)
Professors:	Gita Johar, Meyer Feldberg Professor of Business Adam Royalty, Designer in Residence, Columbia University
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Office Hours:	By appointment.

Note: Creativity and innovation thrive on diversity of skills and opinions. To facilitate such diversity, this class will be listed as a Columbia Business School course as well as a Columbia SEAS (School of Engineering and Applied Sciences) course. We will accept 24 MBA students and 24 SEAS students. We will create diverse teams of MBA and SEAS students; each team will consist of either all remote or all NYC-based students.

The class is experiential and interactive with a lot of team work during class time. Hence only students who can attend live class sessions (i.e., for whom the Eastern Time zone works) should register for the class. The course will be taught over Zoom. Every afternoon, two or three student teams who are based in New York City will meet in the Design Studio at Riverside Church, near campus, to work on the project and get advice from the faculty members. We anticipate that each team will have one opportunity to meet in-person from 4:30 to 6:00 with the professors on one day of the week. We will also use a digital workspace <https://www.mural.co> that will help teams collaborate and apply systematic creativity and design templates while working on their group projects online.

Introduction

Innovation is about seeking creative solutions to challenging problems. In the world of business, creativity is not only about being novel and original, but also about being useful to the end-user. Does the solution solve a user problem effectively and efficiently? Does it address a customer need? Does it do a job for the consumer, a job that needs to be done? In this course, we will learn about the process and tools of design thinking that can help us to understand and define consumer problems, generate ideas to solve these problems, develop concepts and prototype solutions, and experiment and tweak these solutions.

What is design thinking? In the words of Tim Brown of IDEO: “Put simply, [design thinking] is a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity.” More concretely, design thinking usually refers to:

1. A human-centered approach to solving problems, and
2. Using an iterative process to arriving at a better solution.

Human-centered refers to focusing on *real* people’s (usually customer’s) needs and problems—as opposed to focusing on the problems of a demographic group or a segment. We will use methods such as observation and depth-interviews with real, individual consumers and develop products/services based on the insights we generate on the basis of interactions with these consumers. This emphasis on observation and interaction rather than surveys recognizes that we don’t usually know what would solve our challenges and disappointments, and are therefore at a loss to articulate it.

An iterative process refers to the notion that a solution need not be complete and elegant. Rather, design thinking focuses on building somewhat rough product prototypes that are based on deep customer understanding of “jobs to be done.” These prototypes are tested soon and often and constantly evolve. Experimentation plays a big role in testing and refining potential solutions.

So, to summarize, *design thinking is a creative and systematic approach for solving problems by relying on human-centered and iterative processes.*

Course objectives and approach

The course will illuminate how Design Thinking can enhance innovation activities in terms of market impact, value creation, and speed.

The course objectives are:

1. To provide you with a strong conceptual as well as practical understanding of design thinking.
2. To enable you to reliably come up with creative solutions to challenging problems.

More specifically, the course aims to:

1. Strengthen your individual and collaborative capabilities to identify customer needs using indirect and qualitative research, create sound concept hypotheses, and develop a prototype that allows for meaningful feedback in a real-world environment.
2. Help you translate broadly defined opportunities into actionable innovation possibilities and recommendations for client organizations.

The course will use a combination of lectures (including guest lectures), videos, readings, and assignments. The project will give you an opportunity to come up with a creative solution to problems or challenges in a particular consumer context (tbd).

Connection with the Marketing Core Course

This course builds on the concepts of market segmentation, targeting, positioning, new product development, and advertising.

Method of Evaluation

Diverse teams of four will be created by the instructors keeping in mind the usefulness of interdisciplinary perspectives in design thinking.

Class participation/preparedness (individual):	20 points
Assignments (individual and group):	80 points
I. Depth interview and insights (individual)	20 points
II. Project templates (group)	15 points
III. Final project submission (group)	30 points
IV. Final project pitch presentation (group)	15 points

Evaluation and Assignments Details

Your class participation / class preparedness grade will be based on:

- **Attending class and being on time (Please see the last page for Core Culture on Zoom)** - Much of the learning will occur in the course of the discussions and assignments in class, and regular attendance is required in order to receive credit for class participation. **Excused absences must be cleared through the office of student affairs (OSA), who will then inform me of the excused absence.** In general, reasons for excused absences include health problems, personal emergencies, and religious observance (not interviews).
- **Being prepared for class** - Class preparedness will be assessed based on your comments in class as well as on your feedback to other students. Reading the required readings and cases for each session, and completing required assignments, is the best way to prepare for class discussion. Evaluation of class participation is based upon the quality (not the quantity) of your comments, as reflected by their relevance, insightfulness, and coherence. Attendance is a necessary but not sufficient condition for participation. If you do not actively participate in class discussions, and in your team work each day, you will receive a low participation grade even if you attend every class.

- **Your conduct and behavior in class** – Out of respect for the other students in your class, it is important for you to focus your full attention on the class for the entire class period. Most students observe proper decorum, but it takes only one person’s behavior to distract the entire class. Columbia Business School students have complained to the school about students who use class time for other purposes or act in a distracting manner. Class will be conducted using the same rules of decorum that would apply in a business meeting. Please engage fully with your team and work collaboratively on the design challenge during the week, both in and out of the design studio.
- **Your contribution to the team project** – Each team member is expected to fully contribute to all aspects of the group project. Your contribution will be evaluated by your team members and you will also be required to evaluate other team members’ contributions. On the last day of class, you will allocate 100 points between your team members based on their contributions to your project. This evaluation will be used as input to your class participation grade and will also be used to weight your grade on the team project.

Details on other assignments will be presented in class. You will work on an innovation project for a client and create a pitch based on a design thinking process that we will follow in class. The pitch deck is the final group deliverable. Along the way, you will submit the following templates that will be input to your final pitch: Design Brief, Design Criteria, and Napkin Pitch.

Required Cases and Reading

- [Design Thinking at Great Lakes: The Search for Growth](#)” (UVA-S-0248)
- [frog design](#) (HBS 5-119-040)
- [Re-Framing Opportunities: Design Thinking in Action](#) (HBS ROT206-PDF-ENG)
- [Reclaim your Creative Confidence](#) (HBS R1212K-PDF-ENG)
- [Why Design Thinking Works](#) (HBS R1805D-PDF-ENG)
- [Design Thinking Comes of Age](#) (HBS R1509D-PDF-ENG)
- [Stories that Deliver Business Insight](#) (HBS SMR475-PDF-ENG)
- [Empathy on the Edge](#) (HBS ROT254-PDF-ENG)
- [Know your Customers’ “Jobs to be Done”](#) (HBS R1609D-PDF-ENG)
- [Finding Your Innovation Sweet Spot](#) (HBS R0303J-PDF-ENG)
- [Prototyping is the Short Hand of Innovation](#) (from The Art of Innovation by Tom Kelley)
- [What Design Thinking is Doing for the San Francisco Opera](#) (HBS H02XCM-PDF-ENG)

Recommended Books

Jeanne Liedtka and Tim Ogilvie, *Designing for Growth: A Design Thinking ToolKit for Managers* (New York: Columbia University Press, 2011).

Jeanne Liedtka, Tim Ogilvie, and Rachel Brozenske, *The Designing for Growth Field Book: A Step-by- Step Project Guide* (New York: Columbia University Press, 2014).

Drew Boyd and Jacob Goldenberg, *Inside the Box: A Proven System of Creativity for Breakthrough Results* (New York: Simon and Shuster, 2014).

Additional Readings

Belk, R., Fischer, E., & Kozinets, R. V. (2013). *Qualitative consumer and marketing research*. Thousand Oaks, CA: Sage.

Cayla, J., & Arnould, E. (2013). Ethnographic stories for market learning. *Journal of Marketing*, 77(4), 1-16.

McQuarrie, E. F. (2015). *The market research toolbox: a concise guide for beginners*. Sage Publications.

Burroughs, J. & Dahl, D. & Moreau, P. & Chattopadhyay, A. & Gorn, G. (2011). Facilitating and Rewarding Creativity During New Product Development, *Journal of Marketing*, (75), 53-67.

Dym, C. L., Agogino, A. M., Eris, O., Frey, D. D., & Leifer, L. J. (2005). Engineering design thinking, teaching, and learning. *Journal of engineering education*, 94(1), 103-120.

Faraji-Rad, Ali, Shiri Melumad and Gita V. Johar (2017), "Consumer Desire for Control as a Barrier to New Product Adoption," *Journal of Consumer Psychology*, 27 (3), 347-354.

Faraji-Rad Ali, Shiri Melumad, and Gita V. Johar (2016), "When New Products should Make Customers Feel in Control," *Harvard Business Review*.

Goldenberg Jacob, David Mazursky, and Sorin Solomon (1999), "Toward Identifying the Inventive Templates of New Products: A Channeled Ideation Approach," *Journal of Marketing Research*, 36 (May), p. 200-210.

Goldenberg Jacob and David Mazursky (1999), "The Voice of the Product: Templates of New Product Emergence," *Innovation and Creativity Management*, September Vol. 8, 3, 157-164.

Goldenberg, Jacob et al., (1999), "Creative Sparks," *Science*.

Moreau, P. & Dahl, D., (2009) "Constraints and Consumer Creativity," *Tools for Innovation*, 2009, Arthur M. Markman and Kristin L. Wood, (Eds.)

Patrick, V. M., & Hollenbeck, C. R. [Designing for All: Consumer Response to Inclusive Design.](#)
Journal of Consumer Psychology.

COURSE OUTLINE. DAY 1: EXPLORE

Day/ Session	Topic	In-Class Assignments	Pre-class Readings	Post-class Assignment
Monday: Explore 1 9-10:30	<p><i>Get to know your team</i></p> <p>Why Design Thinking and The Design Process</p> <p><i>Introduction to the subject of design thinking and to the Mural collaborative workspace</i></p>		<p>Re-Framing Opportunities: Design Thinking in Action</p> <p>Reclaim your Creative Confidence</p> <p>Why Design Thinking Works</p> <p>Design Thinking Comes of Age</p>	
MORNING BREAK: 10:30 TO 10:50				
Monday: Explore 2 10:50- 12:20	<p>Project Presentation by Client</p> <p>Interview Client, Secondary research</p> <p><i>Scoping the project and deciding on target. For whom are we designing? How will we know if we have succeeded or failed?</i></p>	Team: Fill in Design Brief	Client's Design Challenge	
LUNCH: 12:20 TO 1:15				
Monday: Explore 3 1:15-2:45	<p>Qualitative Research: Guest speaker Prof. Robert Morais</p> <p><i>Challenges and tips on observation and ethnographic interviewing.</i></p>		<p>Stories that Deliver Business Insights</p> <p>Empathy on the Edge</p> <p>Get Better Customer Insights</p>	

			Rethinking Design Thinking	
AFTERNOON BREAK: 2:45 TO 3:05				
Monday Explore 4 3:05 -3:35	Introduction to Journey Maps, Empathy Maps, Online interviews/observations			
Monday Explore 5 3:35 Onwards	Observation and Interviews Online	<p>Pairs of students:</p> <p>Complete 2 or 3 interviews of at least 20 minutes.</p> <p><u>Optional</u></p> <p>Teams 1, 2, and 3 work in the Design Studio from 4:30 to 6:00 for faculty feedback</p>		<p>Individual, to be submitted on Tuesday:</p> <p>Write up one interview each and review data for insights. Capture insights using empathy maps and/or other tools. Benefit ladder.</p>

DAY 2: EXPLORE, REFRAME AND GENERATE

Tuesday: Explore and Reframe 1 9 to 10:30	Identifying Insights <i>Great Lakes Case, Mind Maps</i>	Work in new teams for this case on Mural	Great Lakes Case	
MORNING BREAK: 10:30 TO 10:50				
Tuesday: Explore and Reframe 2 10:50 to 12:20	Insight Tools <i>Journey Maps and Personas, Finalizing insights</i>	Build mind maps, build personas on Mural	Know your Customers' "Jobs to be Done"	
LUNCH BREAK: 12:20 TO 1:15				
Tuesday: Explore and Reframe 3 1:15 to 2:45	Design Criteria <i>Developing design criteria, How Might We Questions</i>	Team: Fill in Design Criteria on Mural		
AFTERNOON BREAK: 2:45 TO 3:05				
Tuesday: Generate 4 3:05 to 3:35	Ideation <i>Brainstorming</i>	Team: Complete HMW statements	Re-Framing Opportunities: Design Thinking in Action	
Tuesday: Generate 5 3:35 Onwards	Ideation <i>Brainstorming</i>	Each team generates ~40 ideas, selects most promising 10 by mapping back to design criteria and insights on Mural <u>Optional</u> Teams 4, 5, and 6 work in the Design Studio from 4:30 to 6:00 for faculty feedback		

DAY 3: GENERATE AND PROTOTYPE

<p>Wednesday: Generate and Prototype 1 9 to 10:30</p>	<p>Concept Development Attribute Value Maps <i>Create/Select a set of concepts using attribute-value maps</i></p>	<p>Team: Select 3 concepts and fill in Napkin Pitches for all of them</p>	<p>Finding your Innovation Sweet Spot</p>	
MORNING BREAK: 10:30 TO 10:50				
<p>Wednesday: Generate and Prototype 2 10:50 to 12:20</p>	<p>Attribute dependency template Prototypes: experiential, 2D prototypes <i>Combine concepts using attribute dependency; Create a pre-experience using storyboards, journey map, user scenario, digital mock-ups, etc.</i></p>	<p>Refine concepts, build prototypes</p>	<p>Prototyping is the Short Hand of Innovation</p>	
LUNCH BREAK: 12:20 TO 1:15				
<p>Wednesday: Generate and Prototype 3 1:15 to 2:45</p>	<p>Customer Co Creation <i>Create 2 or 3 prototypes and test them with other teams. Refine prototypes</i></p>	<p>Refine prototypes</p>		
AFTERNOON BREAK: 2:45 TO 3:05				
<p>Wednesday: Generate and Prototype 4: 3:05 to 3:35</p>	<p>Prototype test set-up <i>Scenes-props-roles</i></p>		<p>What Design Thinking is Doing for the San Francisco Opera</p>	
<p>Wednesday: Generate and Prototype 5 3:35 Onwards</p>	<p>Prototyping</p>	<p>Create two final prototypes and test with other groups <u>Optional</u> Teams 7, 8, and 9 work in the Design Studio from 4:30 to 6:00 for faculty feedback</p>		

DAY 4: TESTING PROTOTYPES USING EXPERIMENTS

Thursday: Prototype Testing 1 9 to 10:30	Evaluation Research Techniques: Guest speaker Prof. Robert Morais <i>How to frame questions and learn from evaluation research.</i>			
MORNING BREAK: 10:30 TO 10:50				
Thursday: Prototype Testing 2 10:50 to 12.20	Experimentation <i>Run experiments to test critical assumptions and to get feedback</i>	Test at least two prototypes with the target market online. Conduct at least two tests per prototype.		
LUNCH: 12:20 TO 1:15				
Thursday: Prototype Testing 3 1:15 to 2:45	Integrate Feedback <i>Iterate on Prototypes</i>	Revise Prototypes and re-test with target market		
AFTERNOON BREAK: 2:45 TO 3:05				
Thursday: Prototype Testing 4 3:05 to 3:35	Positioning Statement and Final Pitch format <i>Start putting together final pitch outline</i>			
Thursday: Prototype Testing 5 3:35 Onwards	Final Pitch <i>Work on Positioning Statement while making final updates to final designs</i>	<u>Optional</u> Teams 10, 11, and 12, work in the Design Studio from 4:30 to 6:00 for faculty feedback		

DAY 5: PRESENTATIONS AND DESIGN THINKING IN PRACTICE

Friday: Putting it all Together 1 9 to 10:30	frog Design: Guest Speaker Professor Harry West Explore the entire process of design and development with a focus on meeting end users' needs.		frog Design Case	
MORNING BREAK: 10:30 TO 10:50				
Friday: Putting it all Together 2 10:50 to 12:20	Final Pitches <i>Students prepare final pitch</i>	Finalize Pitch		
LUNCH BREAK: 12:20 TO 1:15				
Friday: Putting it all Together 3 1:15 to 2:45	Presentations by Teams and Client Feedback	Each team presents for four minutes followed by three minutes of Q&A		Submit all templates and photos of your "Inspiration Wall"
AFTERNOON BREAK: 2:45 TO 3:05				
Friday: Putting it all Together 4 3:05 to 4:35	Client Presentation on Design in Practice			
Friday: Putting it all Together 5 4:35-5:00	Reflections on Design Thinking			

Remote Core Culture

The purpose of Columbia Core Culture is to promote the values of a consistent classroom environment of mutual respect, preparation and engagement in Core and Elective courses. Students are expected to adhere to the same standard of behavior prescribed by Core Culture and Honor Code in both in-person and remote classes.

Present: Students should be on time and present for the entire session:

- You should join your class through Canvas 10 minutes before your class starts to ensure you can address any technical difficulties before class starts.
- Make sure your name as it displays on Canvas is visible.
- While electronic devices are necessary for remote instruction, they should only be used for educational purposes during class time. In other words, you are always expected to have Zoom as the active screen on your computer.
- Your camera must be turned on upon joining the room unless otherwise requested by your instructor. As a reminder, you are expected to dress appropriately when attending.
- You are expected not to leave class during the session unless given a break by your instructor.
- You should attend the section of the course in which you are enrolled. All courses will be held at scheduled times unless otherwise indicated.

Prepared: Students should complete pre-work needed for class.

- Expect cold-calling. Your faculty will share expectations on how to answer when cold-called. Make sure you know how to mute and unmute yourself.
- Expect to use PollEverywhere during class, and that part of a student's participation grade is to participate in polling.

Participate: All courses will have a meaningful component of the final grade attached to preparation and participation.

- Communications will be respectful. Inappropriate language will not be tolerated, and the faculty member has the right to determine what is inappropriate.
- Everyone's comments are important. The diversity of experience among members of the class will enhance learning. All students will be treated equitably within the classroom. The classroom is a place of expression and discussion. Be courteous to others and do not interrupt when another student is speaking.

Additional Core Culture Considerations:

- As a general rule, if you wouldn't engage in behavior or make a comment in a physical classroom do not do so in a virtual one.
- Assume that anything you type or say (or that's taking place in the background) may be visible to your professor and classmates.
- If you have any technical difficulties please contact [ITG Student Support](#) and reference the Zoom guide.

Honor Code

You are expected to conform to the norms of behavior outlined in the Columbia Business School Integrity Code. Any allegation of academic dishonesty will be forwarded to the Office of Student Affairs for investigation. Any case of proven academic dishonesty will result in failure in the course. Simple things such as arriving on time to class, turning cell phones off during class time and not being tempted by the many distractions that the Internet offers can make the experience more enjoyable and rewarding to all.

Instructor Bios

Dr. Gita V. Johar, Meyer Feldberg Professor of Business, Columbia Business School

Gita V. Johar (PhD NYU 1993; MBA Indian Institute of Management Calcutta 1985) has been on the faculty of Columbia Business School since 1992 and is currently the Meyer Feldberg Professor of Business and the Vice Dean for Diversity, Equity and Inclusion. She served as the school's Faculty Director of Online Initiatives from 2014 to 2017, Senior Vice Dean from 2011 to 2014, Vice Dean for Research from 2010 to 2011, Director of the Columbia Business School Behavioral Lab from 2006 to 2011, and on Columbia University's Institutional Review Board from 2002 to 2005. Professor Johar also served as the Faculty Director of the Design Your Innovation Blueprint Executive Education program and as Chair of the Faculty Steering Committee for the Columbia University Global Centers | South Asia in Mumbai. She served as the co-editor of the premier academic journal on consumer behavior, the *Journal of Consumer Research* from July 2014 to December 2017 and is currently an associate editor at the *Journal of Marketing* and a guest editor of a special issue of the journal on "Better Marketing for a Better World." Professor Johar's expertise lies in consumer psychology, focusing on how consumers react to marketing efforts, especially advertising, promotions and sponsorship. She also examines the influence of consumer identity, self-control and perceptions of control on decision making and consumption and studies how to nurture creativity. She has published several influential articles in these areas of research in premier journals. Professor Johar has also published cases on consumer adoptions of new products as well as on marketing and advertising planning. She teaches the core Marketing course and Global Immersion courses in emerging markets such as India and Myanmar, as well as courses on Innovation, Research Methods, and Consumer Behavior to MBA, Executive MBA and PhD students.

Adam Royalty, Designer-in-Residence, Columbia Entrepreneurship Innovation and Design

Adam Royalty is the Designer-in-Residence and founder of The Design Studio@Columbia Entrepreneurship. He specializes in helping teams use human centered design to launch and grow their ventures. Design methods and mindsets are especially useful for uncovering key insights from customers and rapidly iterating the core idea. Both of these together drive product/market fit.

Understanding how design can lead to personal and organizational transformation drive Adam's work. His research pursuits focus on how to authentically measure the impact of human centered design. As part of this effort Adam has worked to deepen the creative capacity of organizations across many sectors in over a dozen countries. Prior to his role at Columbia, Adam was a member of the full-time team at the Hasso Plattner Institute of Design at Stanford (a.k.a. the d.school). There he facilitated multiple design thinking courses and workshops. Additionally Adam was a founding member of the d.school K12 Lab and Environments Collaboration.