

COURSE OUTLINE: BU5545 Consumer Neuroscience: How Brain Science is Informing Business

Academic Year	23/24	Semester	2
Course Coordinator	Prof Gemma Calvert		
Course Code	BU5545 (Monday & Tuesday classes)		
Course Title	Consumer Neuroscience: How Brain Science is Informing Business		
Pre-requisites	None		
No of AUs	3		
Contact Hours	3 hours for 13 weeks = 39 hours		

A) Course Aims

Marketers are now beginning to appreciate the many and varied roles that our unconscious mind plays in consumer responses, choices and behaviour. This has led to the emergence of a new type of marketing, one that is based on a scientific model of consumer choice and behaviour, and that recognizes the functions of both unconscious and conscious brain processes. This is referred to as “intuitive marketing”. The purpose of this course is to educate students as to how traditional models of marketing are being revised and updated to incorporate what we now know about how the human brain works to create more effective ways of engaging and communicating with consumers in today’s digital age. This course will prepare students to adapt to a groundbreaking shift change in marketing strategy and is relevant for anyone planning a career in any industry which relies on accurate understanding of consumers, customers or clients for their success. The course is particularly recommended for those looking to pursue a career in new product development, entrepreneurship, marketing, advertising and market research.

B) Intended Learning Outcomes (ILO)/Objectives

By the end of this course, you should be able to:

1. Identify the most suitable neuromarketing tools to address a specific set of marketing questions
2. Design a neuromarketing proposal which answers a neuromarketing brief
3. Persuade your audience that you have made the optimal neuromarketing recommendations
4. Apply the principles of neuromarketing and behavioural change science to craft effective marketing messages
5. Conduct a multisensory brand audit
6. Critically evaluate the ethical issues surrounding neuromarketing

C) Course Content

1. Introduction to Intuitive Marketing and Consumer 2.0
2. Physiological indicators of marketing effectiveness
3. Tracking visual attention in store and on products
4. Evaluating System 1 thoughts and emotions
5. Measuring brain waves in marketing
6. Seeing inside the brain of the consumer
7. Group Project Kick-off Workshop (Quiz 1)
8. Applying what we know about how the brain works to create effective communications
9. How to change consumer behaviour for the better
10. Multisensory marketing and maximizing consumer senses
11. How is technology re-wiring the brain & Debate on the ethics of neuromarketing (Quiz 2 & Ethics Quiz)
12. Group presentations Part 1
13. Group presentations Part 2

D) Assessment (includes both continuous and summative assessment)

Component	ILO Tested	NBS Learning Goal (Refer to Annex E for list)	Weighting	Team/Individual	Assessment Rubrics (Please insert rubrics as Appendix)
1. Online tests/quizzes	1, 4, 5	Acquisition of knowledge	30%	Individual	NA
2. Neuromarketing research proposal (All team members must present)	1, 2, 3	Problem solving and decision making & Oral Communication	35%	Team (35% for the content of the Slide deck of Neuromarketing Research Proposal)	Problem Solving and Decision Making Rubric (Team) Oral Communication Rubric (Individual)
		Combined score	10%		
				All students are required to complete a Peer evaluation for contribution to the team project.	
				The peer assessment is conducted between weeks 10-13 using the Eureka platform and the form used by AoL office.	
3. Class participation	1, 4, 5	Class Participation	15%	Individual	Class Participation Rubric
4. Online test	6	Ethical Reasoning	10%	Individual	Ethical Reasoning Rubric
Total			100%		

As the neuromarketing proposal/slide deck report content is based on a team effort, all members of your team will get the same marks for the content of this assignment. You should bring any concerns about any of the team member(s) (e.g., lack of effort) to the attention of the course coordinator during the preparation period, so these concerns can be addressed. Peer evaluation will be conducted for the team project via Eureka. See Annex A for the relevant rubric for peer evaluation. If any team member scores an **overall average rating of 5 and below (i.e., the mean of the average ratings from all other team members)**, your course coordinator will engage directly all the team members about the issue(s) at hand. If your instructor deems that a team member has not contributed sufficiently after looking into the matter, a penalty will be dealt to the offending team member. This process is to

ensure that no student is unfairly accused of not contributing to the team projects without clear supporting evidence.

Moreover, the peer evaluation results for the proposal assignment will be released to your peers to give them quantitative feedback and qualitative feedback (i.e., what they have done well, what can be improved upon). Teamwork is essential skill set for students to learn.

Please make sure that you keep any negative comments civil. Even though you should raise any concerns that you might have about your team members, that does not mean you can use inappropriate language and be offensive in general.

E) Formative feedback

You will receive interim scores for your online tests which will be conducted during classes 2 times during the course. You will also gain an indication of your Class Participation level before semester break. **Class participation is an aggregate of the course coordinator’s assessment of your involvement in the class (asking or answering questions) and your peer evaluations for class based group activities.** You will receive verbal feedback regarding your group presentation assignments immediately following the presentation.

F) Learning and Teaching approach

Approach	How does this approach support you in achieving the learning outcomes?
Seminar	The interactive seminar session is the initial route for acquisition of knowledge and will provide ample opportunities for open discussion on the intricacies of the neuroscientific approach to business and consumer insight. This will allow you to demonstrate your critical thinking skills and share ideas and opinions with the class.
Debate and Online Test	The Class Debate on the Ethics of Neuromarketing provides a forum for all students to demonstrate their ethical awareness and reasoning skills. Students will be required to read a set of papers on the Ethics of Neuromarketing in preparation for participation in the debate and will be required to take a quiz designed to test the Ethical Reasoning rubrics.
In Class Online Quizzes	During the course you will be given 3 online quizzes which will test your knowledge and understanding of the material that has been taught and provide you with ongoing feedback on your performance.
In-Class activities	Some learning outcomes for this course are skills which are practical in nature and are more readily assessed from teamwork and group-based presentations. Your involvement in these class activities within your teams will contribute to your Class Participation marks which are awarded by your course coordinator (raising and answering questions in class) and your peers (online peer evaluation form after each group-based class activity).

G) Reading and References

RECOMMENDED PRE-COURSE READING

1. Neuroscience in Practice. The Definitive Guide for Marketers. (2013) Admap Magazine. This is an industry article written for non-specialists and provides an overview of the tools of neuromarketing. You will need this to assist you with the group-based class activities and the final group project assignment. (1 hour read)

2. Neuromarketing: What you need to know. Harrel, E. (2019). Harvard Business Review. A brief overview of the neuromarketing field in the past 5 years. (10 min read)
3. 10 Mistakes Persuasive Marketing Makes. (2020). Genco, S. Article published in Better Marketing – available online (10 min read)
<https://bettermarketing.pub/10-mistakes-persuasive-marketing-makes-a0aba8414644>

REQUIRED COURSE READING

The course reading list and soft copies of Required and Recommended (for those who wish to delve more deeply into the issues) readings are available from the course site under Content/Course Reading.

Core textbook:

Decoding the Irrational Consumer. Bridger, D. (2015). This is available in soft copy on the course website under Content/Reading/General. Specific chapters will be suggested by the instructor prior to each class, together with the Required and Recommended articles.

Recommended read:

Intuitive Marketing: What marketers can learn from brain science. Genco, S. (2019) (available from Amazon). Well written and easy to read book covering in more depth how insights from neuroscience are changing the way marketers think about consumers and marketing strategies

H) Course Policies and Student Responsibilities

- (1) Attendance: You are required to attend all classes.
- (2) Punctuality: You are expected to be punctual and arrive before the start of class, as late arrivals will be disruptive to class activities and considered disrespectful to the instructor and fellow students. For submission of course requirements, you are required and expected to follow the submission deadlines.
- (3) Preparation: You are expected to prepare for each seminar by reading the assigned material prior to each class.
- (4) Participation: Once in class, you are expected to contribute to class discussions and exercises as well as ask questions whenever in doubt. You are also expected to observe respectful behaviour such as raising your hand before speaking, not interrupting other students, not using electronic devices unless required for problem solving exercises, and not causing any distractions to fellow students.

Absence from class without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies.

If you miss a lecture, you must inform the course instructor via email prior to the start of the class. Student responsibilities include attendance, punctuality, preparation and participation.

I) Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

J) Course Instructor

Instructor	Office Location	Phone	Email	Consultation Hours
Prof Gemma Calvert	Gaia 06-087	+65 98519745	GCalvert@ntu.edu.sg	By appointment

K) Planned Weekly Schedule

Week	Topic	ILO	Readings/ Activities
1	Introduction to Intuitive Marketing and Consumer 2.0	1	Overview lecture and introduction to the course and Consumer 2.0
2	Physiological indicators of marketing effectiveness	1	Seminar and individual activities
3	Tracking visual attention in store and on products	1	Seminar and group-based activity and analysing eyetracking data
4	Evaluating System 1 thoughts and emotions	1	Seminar and group-based activity
5	Measuring brain waves in marketing	1	Seminar and group-based activity: analysing brain wave data
6	Seeing inside the brain of the consumer	1	Seminar and group-based presentations
7	Group Project Kick-off Workshop and online Quiz 1 (MCQ covers content covered in Classes 1-6 and associated readings)	1, 2, 3	Teams will be given their Neuromarketing Briefs and work in their teams to set clear priorities and plans of action for implementing defined tasks for project completion.
8	Applying what we know about how the brain works to create effective communications	4	Seminar and group-based activity: create a piece of advertising copy
9	How to change consumer behaviour for the better	4	Seminar and group-based activity: design a nudge campaign
10	Multisensory marketing and maximizing consumer senses	5	Seminar and group-based activity: Conduct a multisensory brand audit

11	The brain in business, neuroleadership and the ethics of neuromarketing Quiz 2 (MCQ covers topics covered in Class 8-10) Neuro-Ethics Quiz	6	Seminar & class debate on neuro-ethics
12	Group presentations Part 1	1, 2, 3	Final team presentations
13	Group presentations Part 2	1, 2, 3	Final team presentations

ANNEX A: ASSESSMENT CRITERIA FOR TEAMWORK & INTERPERSONAL SKILLS (PEER EVALUATION) RUBRIC

Traits	Performance									
<p>1. Roles and Responsibility (RR) Behaves professionally by upholding responsibility and assuming accountability for self and others in progressing towards the team’s goal.</p>	<p>Not Yet Unclear about his/her own role; refuses to take a role in the group; insists to work individually and has limited coordination or communication with others.</p>	<p>Substantially Developed Always fulfills responsibilities; performs his/her role within the group with enthusiasm and demonstrates willingness to work collaboratively.</p>								
<p style="text-align: center;">Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed</p>										
<p>2. Communication (CM) Identifies appropriate mechanisms to coordinate and correspond with team members.</p>	<p>Not Yet Modes of communication are not appropriate, causing confusion and miscommunication among team members.</p>	<p>Substantially Developed Modes of communication are appropriate, and maintaining timely communication and correspondence with team members.</p>								
<p style="text-align: center;">Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed</p>										
<p>3. Conflict Resolution (CR) Resolves conflicts using a variety of approaches.</p>	<p>Not Yet Does not recognize conflicts or is unwilling to resolve conflicts.</p>	<p>Substantially Developed Consistently resolves conflicts through facilitating open discussion and compromise.</p>								
<p style="text-align: center;">Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed</p>										
<p>4. Contributions (CT) Contributes positive input for the team; effectively utilizes one’s knowledge and expertise.</p>	<p>Not Yet Largely disinterested in working in a group and refuses to participate; observes passively or is unwilling to share information with other team members.</p>	<p>Substantially Developed Actively attends and participates in all activities and provides meaningful contribution in articulating ideas and opinions.</p>								
<p style="text-align: center;">Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed</p>										
<p>5. Relationship (RS) Maintains cooperative interaction with other team members regardless of individual /cultural differences and respects diverse perspectives.</p>	<p>Not Yet Rarely listens to others and does not acknowledge the opinions that differ from his/her own.</p>	<p>Substantially Developed Engages in respectful relationships with all other members in the team. Embraces and accepts diverse points of view without prejudice.</p>								
<p style="text-align: center;">Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed</p>										

ANNEX A: ASSESSMENT CRITERIA FOR CLASS PARTICIPATION RUBRIC

Traits	Performance		
	1-2	3	4-5
Contribution frequency	Does not speak up/contribute in class	Occasionally speaks up/contributes in class	Speaks up/contributes in all classes
Contribution quality	Contributions lack substance	Contributions demonstrate knowledge of subject matter	Contributions are constructive and insightful

ANNEX A: ASSESSMENT CRITERIA FOR PROBLEM SOLVING AND DECISION MAKING (TEAM) RUBRIC

Traits	Performance	
Define the Problem	<p>Not Yet Does not identify the problem clearly; demonstrates limited understanding of the problem or related contextual factors.</p>	<p>Substantially Developed Identifies the problem clearly and thoroughly; demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant contextual factors.</p>
	<p align="center">Evaluation: Not Yet <u>1</u> 2 3 4 5 6 7 8 9 <u>10</u> Substantially Developed</p>	
Devise Strategies to Solve the Problem	<p>Not Yet Selects a strategy without regard to fit; does not demonstrate the ability to consider new strategies even if his/her approach is clearly not appropriate; identifies alternatives that reflect limited understanding of the situation.</p>	<p>Substantially Developed Identifies multiple strategies for solving the problem that apply within a specific context; demonstrates the ability to invert a process to form a plan and clearly articulates his/her decision making process; identifies alternatives that reflect an in depth understanding of the situation.</p>
	<p align="center">Evaluation: Not Yet <u>1</u> 2 3 4 5 6 7 8 9 <u>10</u> Substantially Developed</p>	
Assess Implementation Feasibility	<p>Not Yet Does not examine how well the stakeholders/ beneficiaries are involved and not able to identify areas of risk and possible side-effects. Does not specify how the implementation will be monitored and controlled. No indicators or instruments to review or analyze the success of the action.</p>	<p>Substantially Developed Clearly assess how well the stakeholders/ beneficiaries are involved; considers areas of risk and provides insights in addressing possible side-effects. Able to state how the implementation will be monitored effectively; identifies the stages at which progress should be measured and specify what results are expected to have been achieved at these stages.</p>
	<p align="center">Evaluation: Not Yet <u>1</u> 2 3 4 5 6 7 8 9 <u>10</u> Substantially Developed</p>	
Evaluate Outcomes	<p>Not Yet Reviews results superficially in terms of the problem defined with no consideration of need for further work.</p>	<p>Substantially Developed Reviews results relative to the problem defined with thorough, specific considerations of need for further work.</p>
	<p align="center">Evaluation: Not Yet <u>1</u> 2 3 4 5 6 7 8 9 <u>10</u> Substantially Developed</p>	

ANNEX A: ASSESSMENT CRITERIA FOR ORAL COMMUNICATION (INDIVIDUAL) RUBRIC

Traits		Performance									
Communication Outcome (60 %)	<ul style="list-style-type: none"> Has a clear message for audience Maximizes likelihood of audience accepting the message Use marketing concepts and frameworks to convince your audience of efficacy of recommendations 	Not Yet Central message is not explicitly stated in the presentation. Main points are not clearly identified, audience unsure of the direction of the message.	Substantially Developed Central message is precisely stated; main points are clearly identified.								
		Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed									
Situational Factors (10 %)	<ul style="list-style-type: none"> Addresses audience needs Builds rapport with audience 	Not Yet Topic is irrelevant to audience needs and interest. No attempt made to connect topic to audience.	Substantially Developed Connection of topic to audience needs and interest is stated with sophistication. Identifies and expresses a deep understanding of the target audience.								
		Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed									
Design Factors (30 %)	<u>Structure</u> <ul style="list-style-type: none"> Organises content coherently Signals transitions between points 	Not Yet Organizational pattern (specific introduction and conclusion, sequenced materials within the body, and transitions) is not observable.	Substantially Developed Organizational pattern is clearly and consistently observable and makes the content of the presentation cohesive.								
		Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed									
	<u>Verbal</u> <ul style="list-style-type: none"> Speaks at appropriate speed and volume Uses correct grammar and pronunciation 	Not Yet Grammar, pronunciation and word choice are deficient. Vocal delivery is too soft or too fast to understand; gap-fillers interfere with expression.	Substantially Developed Free of errors in grammar and pronunciation; good choices of word enhance clarity of expression. Vocal delivery is varied and dynamic. Speech rate, volume, and tone facilitate audience comprehension. Minimal gap fillers.								
		Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed									
<u>Non-Verbal</u> <ul style="list-style-type: none"> Establishes eye contact (<i>with the camera</i>) Uses gestures and movement to convey energy and confidence 	Not Yet Eye contact, posture, gestures, movement and facial expressions are inappropriate and significantly distracting.	Substantially Developed Eye contact, posture, gestures, movement and facial expressions make the presentation compelling, and speaker appears polished and confident.									
	Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed										

ANNEX A: ASSESSMENT CRITERIA FOR ETHICAL REASONING RUBRIC

Learning Objective: The ability to recognize and understand ethical issues, and apply sound ethical reasoning.

Traits	Performance	
<p><u>Ethical Sensitivity or Awareness</u></p> <p>Ability to sieve out, recognize and identify ethical issues and risks in the case scenario.</p>	<p>Not Yet Unable to identify ethical elements in the case scenario.</p>	<p>Substantially Developed Able to identify ethical elements in the case scenario.</p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		
<p><u>Ethical Knowledge, Understanding and Judgment</u></p> <p>Ability to raise pertinent questions or clarify relevant information to obtain a clearer understanding and/or form an appropriate judgment of the issues involved in the case scenario.</p>	<p>Not Yet Unable to demonstrate adequate knowledge and understanding of relevant concepts and how they work.</p>	<p>Substantially Developed Able to identify some of the relevant ethical notions relevant to understanding and forming an appropriate judgment.</p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		
<p><u>Ethical Reasoning and Solution</u></p> <p>Ability to apply sound and robust ethical reasoning in developing viable solutions to resolve the problems or issues.</p>	<p>Not Yet Unable to apply ethical reasoning to resolve the relevant problems or issues.</p>	<p>Substantially Developed Able to apply ethical reasoning logically and rationally to resolve the problems or issues.</p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		

Reference: Dellaportas, S., Jackling, B., Leung, P., Cooper, B. J. (2011). Developing an Ethics Education Framework for Accounting. *Journal of Business Ethics Education* 8: 63-82.

ANNEX B: NOTES AND SAMPLES

Peer Evaluation Instructions (Team Group Assignment: Neuromarketing Proposal)

All members are required to complete a peer evaluation for each member of the team (i.e., including a self-assessment). The completed peer evaluation form must be submitted individually to the instructor immediately after the team project has been submitted for grading. Identity of appraisers will be kept **confidential** and will not be revealed to other team members.

We will use a member's ratings (on a scale ranging from 1 to 10) to award marks for the team project to other members by computing the average rating that a member receives from other members (i.e., excluding each member's self-rating). Each member will be informed of his/her average rating. A member's mark for the team project will be computed as follows:

1. If a member's average rating is ≥ 4 , the member will receive **100%** of the overall mark awarded to the team project.
2. If a member's average rating is < 4 but ≥ 3 , the member will receive **80%** of the overall mark awarded to the team project.
3. If a member's average rating is < 3 but ≥ 2 , the member will receive **50%** of the overall mark awarded to the team project.
4. If a member's average rating is < 2 , the member will receive **30%** of the overall mark awarded to the team project.

A member who has concerns with the ratings given by other team members and/or his/her average rating should immediately consult his/her instructor upon receiving his/her peer evaluation feedback.

CONFIDENTIAL PEER EVALUATION FORM FOR TEAM PROJECT

Member's name: _____

Seminar group and team number: _____

Please use the attached Peer Evaluation Rubric to evaluate yourself and your team members on each of the 5 stated attributes (on a scale of 1 to 10). State your ratings for yourself and each of your team members in the table below. For your self-assessment, insert "(Self)" after your name in the table below.

Index #	Name of team members	1 - RR	2 - CM	3 - CR	4 - CT	5 - RS	Average Rating
1							
2							
3							
4							
5							
6							

If any of your ratings above is < 4, please provide a brief explanation to justify the ratings.

Index #	Brief explanation to justify a rating of < 4