

**PSYCHOLOGY 5507**  
**ADVANCED COGNITIVE PSYCHOLOGY: *COGNITION & EMOTION***  
**COURSE SYLLABUS**

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**Instructor**

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**Office Hours**

TUE: 1 – 2 pm by appointment

**Office Locations**

Cherry Hall, Rm 355

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**Course Meeting Time & Location**

Tuesdays, 8:30 am - 11:15 am, Cherry Hall Rm 143

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*Course Overview*

**The goals of this course are (1) to provide advanced psychological and neuroscientific knowledge in the areas of cognition and emotion, (2) to help students to apply this knowledge to their own clinical or experimental health research.** Cognition and emotion were classically thought to be represented separately in the brain but recent advances in brain science contradict this notion. In recent years, scientists have made considerable advances in understanding how cognitive and emotional systems interact in the human brain. In this course we will review the historical foundations and the current state of knowledge regarding human information processing focusing especially on the topics of attention, memory, executive function, and decision-making. In exploring these topics we will review current and classic theories, empirical studies, and discuss the remaining issues in the field.

*Learning Objectives*

Upon completion of this course, you will be able to:

- Understand fundamental cognitive theories of attention, memory, executive function and decision-making;
- Explain and provide examples of how traditional and modern methodologies are used as tools to understanding cognition and emotion;
- Describe the major theories of emotion;
- Define and use appropriate basic terminology from the literatures on cognition and emotion;
- Describe the major theories of attention. Explain the subtypes of attention and how each attention subtype is assessed. Recognize and provide examples of the documented effects of emotion on attention;
- Explain the complex nature of memory and memory assessment. Describe the properties/characteristics of each memory subtype. Recognize and provide examples of the documented effects of emotion on memory;
- Explain the construct of executive function, its assessment, and the relationship of executive function to attention, memory, and other higher-order cognitive processes. Recognize and provide examples of the documented effects of emotion on executive function;
- Explain and provide examples of how the relationship between cognition and emotion is impacted by individual difference variables such as health, mental health, age, gender, and ethnicity.

### *Course Format*

For most of class meetings, we will focus specifically on the current literature relevant to each day's topic and discuss how to link this up-to-date knowledge to students' own research. For each assigned reading, students will be primarily responsible for leading discussion.

[*Tentative*] If needed and applicable, students may get hand-on experience in several research techniques.

### *Recommended Books (if you are interested in)*

***Cognitive Neuroscience: The Biology of the Mind (4<sup>th</sup> Edition)*** (2013) by Gazzaniga, Ivry, & Mangun  
| ISBN-10: 0393913481 | ISBN-13: 978-0393913484 |

***Fundamentals of Cognitive Psychology 2<sup>nd</sup> edition*** (2011) by Ronald T. Kellogg  
| ISBN-10: 1412977851 | ISBN-13: 978-1412977852 | (or any cognitive psychology textbook you already have)

You are not required to buy a textbook in this class. This undergraduate-level textbook may be useful to understand the fundamental concepts of cognitive psychology that you are expected to be already familiar with. If you did not take undergraduate-level cognitive psychology, you may need to spend extra time to catch up basic cognitive concepts and terms to be prepared for the discussion portion of class.

***Handbook of Cognition and Emotion*** (2013), edited by Michael D. Robinson, Edward R. Watkins, Eddie Harmon-Jones | ISBN-10: 1462509991 | ISBN-13: 978-1462509997 |

### *Course Materials and Readings*

Course related documents and announcements will be available online via the Blackboard website:  
<https://blackboard.umkc.edu>

Login using your UMKC Single Sign On (SSO) account. Your SSO is the same for your email and all computer-related access at UMKC. If you have any problems logging on to the site or if the course does not show up in your account, please call the UMKC Call Center at 816-235-2000.

The course readings will come from a variety of primary and secondary sources. For each class meeting there will be several general overview readings assigned along with empirical articles. Typically, all of the assigned readings will be available for download from the blackboard website. When length or other attributes make an article difficult for scanning, a hard copy will be distributed at least one class meeting prior to the date the reading is due.

You are expected to complete all of the assigned readings **prior** to each week's class.

*Course Policies*

This course will adhere to the university policies that are posted at: <http://cas.umkc.edu/student-resources.asp>. Please review carefully the policies at this website for information regarding policies on student services, attendance, and academic honesty. In addition, please note the following policies:

*Late papers/assignments. As a general rule, late papers will not be accepted.* Discussion questions are due at the beginning of each class. No points will be given for questions submitted late. Under extraordinary circumstances, late arriving papers will be reduced by ½ grade per day until the assignment is submitted.

*Attendance:* I expect you to attend class. Because of the dynamic presentation and discussion format of class, it is imperative that you notify me as early as possible if you are going to miss a class in which you are scheduled to be a discussion leader. Under such circumstances, you are welcome to switch your assigned day with a classmate. However, if none of your classmates is willing to switch and you miss a presentation day, you will lose your full points for the assigned day.

*Assistance/Accommodations:* UMKC is committed to providing equal access to its learning environment. If you are an individual with a specific hearing, sight, physical, psychiatric, learning or other disability, you may be eligible for support services. Please contact Scott Laurent, Coordinator of Services for Students with Disabilities at (816) 235-5696 as soon as possible. Students who anticipate they will need any special assistance or accommodations due to a disability should see me prior to the second-class meeting so we can make those arrangements.

*Academic Honesty:* The Missouri Board of Curators recognizes that academic honesty is essential for the intellectual life of the University. Students have an obligation to adhere to the standards listed in the Catalog under Student Conduct. Students will automatically receive a grade of “0” for an assignment where they have cheated in any way. In addition, all violations of academic dishonesty will be pursued according to the Student Conduct Code. *If you have any questions as to what constitutes cheating including plagiarism, please ask me.*

*English Proficiency:* Students who encounter difficulty in their courses because of the English proficiency of their instructors should speak directly with their instructors. If additional assistance is needed, they may contact the UMKC Help Line at 816-235-2222 for assistance.

*Statement of Human Rights:* The Board of Curators and UMKC are committed to the policy of equal opportunity, regardless of race, color, religion, sex, sexual orientation, national origin, age, disability and status as a Vietnam era veteran. Commitment to the policy is mentored by the [Division of Diversity, Access & Equity](#), but it is the responsibility of the entire university community to provide equal opportunity through relevant practices, initiatives and programs.

## *Grading*

### **Grading System:**

1. **Question Assignment / Active Participation (20%)**: every week (8 discussion meetings \* 2% + 4 proposal meetings \* 1%)
2. **Assigned Article Presentation (20%)**: 2 review papers and 2 research papers (1 assigned and 1 your own choice)
3. **Research Proposal Write-up (30%)**: NIH R21 grant proposal style (or submit NSF fellowship application)
4. **Research Proposal Presentation (10%)**: in-class presentation
5. **Experimental Paradigm Demonstration (5%)**: in-class presentation
6. **Proposal Review (10%)**: evaluate and review two proposals of other students
7. **Research Proposal Revision (5%)**: revise your proposal to address review comments

### **Question Assignment (20%)**

For each week's **Question** assignment, **before each class meeting** you need to submit discussion questions for each of the day's assigned readings (one Q for each paper) to **Blackboard Discussion Board**. If you see similar questions posted by other students, please consider revising your questions for productive class discussion. Submitting questions will be worth 1% points (0.25% per question). An additional 1% point will be added for active participation in the discussion and evidence that you were prepared for the class. If you are absent for a class (without pre-arranged absence excuse) and cannot participate in discussions, you will receive a 0% point for the participation portion of the points as well as lose 1 % point. However, if the discussion questions are submitted ahead of the missed class, the full points for the questions may be earned (depending on the quality of the questions).

### **Assigned Article Presentation (20%)**

Each student will be assigned to present a review four times over the course of the semester (two review papers, one assigned research paper, and one research paper of your own choice). When you present the paper of your choice, you must send a PDF file to the instructor **at least 2 weeks before** your presentation day to provide other students enough time to read the research paper you selected. Otherwise, 1% point/per day will be deducted. For each presentation, you will serve as discussion leader for your assigned review or research articles. You will have ~20 minutes to summarize the study's purpose, methods, results, strengths, weaknesses, and significance; whatever you feel is most relevant. If you prefer, you may use PPT slides. Each presentation will be worth 5% points each. Your grade on a review will be determined by the quality, clarity, and accuracy of your presentation and on how well you are able to address or incorporate your classmates' discussion questions.

### **NSF Graduate Research Fellowship.**

An eligible student can choose to apply NSF fellowship instead of Research Proposal Write-up (see below). <http://www.nsf.gov/pubs/2014/nsf14590/nsf14590.pdf>

- Deadline: November 3, 1014
- \$32,000 stipend for three years over a five-year fellowship period
- Applicants must be United States citizens, nationals, or permanent residents of the United States
- During the first year of graduate school; or prior to completing the fall term of the second year of graduate school
- Three reference letters
- Personal, Relevant Background and Future Goals Statement (3 pages)
- Graduate Research Plan Statement (2 pages)
- When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the

project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions.

- *Intellectual Merit*: The Intellectual Merit criterion encompasses the potential to advance knowledge
- *Broader Impacts*: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

### Research Proposal Write-up (30%)

For the final paper you will select a topic of your own interest and write to a grant proposal that investigates cognitive-affective interactions by using *experimental methods*. For this proposal, neither *questionnaires* nor *clinical tests* can be main tools. You need to follow NIH R03 or R21 grant proposal guidelines: **1 page Specific Aims + max 6 page Research Strategy + Bibliography (references)**.

#### 1. Specific Aims – LIMITED TO 1 PAGE

- State concisely the goals of the proposed research and summarize the expected outcomes, including the impact that the results of the proposed research will exert on the field involved.
- List succinctly the specific aims of the research proposed (e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology).

#### 2. Research Strategy – LIMITED TO 6 PAGES (sections a-c)

- Organize the Research Strategy in the order specified below.
- Start each section with the appropriate section heading – Significance, Innovation, Approach.
- Cite published experimental details in the Research Strategy section and provide the full reference in the Bibliography and References Cited section.

##### (a) Significance

- Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

##### (b) Innovation

- Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
- Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions.
- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions.

##### (c) Approach

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims. You also may wish to include a discussion of future directions for your research, as well as a project timeline, in this section.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.

Tips, Resources, Samples; there are a lot of resources available.

[http://grants.nih.gov/grants/writing\\_application.htm](http://grants.nih.gov/grants/writing_application.htm)

<http://www.niaid.nih.gov/researchfunding/grant/pages/appsamples.aspx>

**Research Proposal Presentation (10%):**

Every student will provide ~20 min presentation of the proposal in the class. Your grade for proposal presentation will be determined by the quality, clarity, and accuracy of your presentation and by how well you deal questions from other students.

**Experimental Paradigm Demonstration (5%):**

Please incorporate a short experimental paradigm demonstration in your proposal presentation. Very often, visualizing and/or demonstrating your paradigm can provide invaluable insight on your proposal idea. If you are already familiar with some experimental presentation paradigms (<http://visionscience.com/documents/strasburger/strasburger.html>), feel free to use it. Many commercial computer programs provide a trial version. Don't be afraid to try.

However, if you are not comfortable to learn this, it may be okay to use PPT to just show sample screens. It's your choice.

Some popular examples:

SuperLab: <http://www.superlab.com/>

E-prime: <http://www.psnet.com/eprime.cfm>

Psychtoolbox: <http://psychtoolbox.org/HomePage>

Presentation: <http://www.neurobs.com/>

Inquisit: <http://www.millisecond.com/>

Paradigm: <http://www.paradigmexperiments.com/>

**Proposal Review (5%):**

Every student will be asked to evaluate and write *anonymous* reviews (Max 1 page each) for *two randomly assigned* proposals of other students. Note that they are your colleagues/collaborators and you need to provide "constructive" reviews to help other students to improve their proposals. Your reviews will be used for your own grade, not for the grade of proposal writers. Please use NIH review guidelines to prepare your *anonymous and constructive* reviews (Max 1 page each).

[http://grants.nih.gov/grants/peer/critiques/rpg.htm#rpg\\_overall](http://grants.nih.gov/grants/peer/critiques/rpg.htm#rpg_overall)

**Overall Impact. R01, R03, R21, R34.** Reviewers will provide an overall impact/priority score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following review criteria and additional review criteria (as applicable for the project proposed).

NIH scoring system: [http://grants.nih.gov/grants/peer/guidelines\\_general/scoring\\_system\\_and\\_procedure.pdf](http://grants.nih.gov/grants/peer/guidelines_general/scoring_system_and_procedure.pdf)

Overall Impact or Criterion Strength	Score	Descriptor
High	1	Exceptional
	2	Outstanding
	3	Excellent
Medium	4	Very Good
	5	Good
	6	Satisfactory
Low	7	Fair
	8	Marginal
	9	Poor

Note that you need to justify your overall impact/priority score, but it will not affect proposal writers' grade.

**1. Significance. R01, R03, R21, R34.** Does the project address an important problem or a critical barrier to progress in the field? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

**2. Investigator(s).** Not relevant for our class project

**3. Innovation.** Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

**4. Approach. R01, R03, R21, R34.** Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed?

**5. Environment.** Not relevant for our class project

**Research Proposal Revision (5%):**

The final contributor to your grade will be your revision of the grant proposal. Revise your proposal (if needed) and provide a short revision cover letter (max 1 page). You don't necessarily need to follow all criticisms of grant reviewers. However, you need to explain and clarify how you will handle or address those issues.

**Introduction to Application (for Resubmission or Revision applications only) – LIMITED TO 1 PAGE**

- For resubmissions, the introduction should summarize the substantial additions, deletions, and changes to the application. The Introduction must also include a response to the issues and criticism raised in the Summary Review Statement.
- For revisions, the introduction should describe the nature of the supplement and how it will influence the specific aims, research design, and methods supported by the current award.

**Final Grade (sum of all above)**

Percentage	Grade	Percentage	Grade	Percentage	Grade
93-100	A	80-83.9	B-	67-69.9	D+
90-92.9	A-	77-79.9	C+	64-66.9	D
87-89.9	B+	73-76.9	C	60-63.9	D-
84-86.9	B	70-72.9	C-	Below 60	F

**TENTATIVE COURSE SCHEDULE (subject to change by the instructor in class)**

Week	Dates	TOPIC	Due	Text/Review Paper	Research Paper
1	8/26	<b>Overview: Cognition and Emotion</b>			P1. Lim (2005): Lark P2. Lee (2008): Lark
2	9/2	<b>Measures Emotional disorders</b>	Q1	T1. Mauss (2009): T2. Mathews (2005):	R1. Kassam (2013): R2. TBD:
3	9/9	<b>Cognitive approach Emotion &amp; Attention 1</b>	Q2	T3. Oatley (2014) T4. Vuilleumier (2007):	R3. Phelps (2006): R4. TBD:
4	9/16	<b>Emotion &amp; Attention 2</b>	Q3	T5. Pessoa (2002): T6. Yiend (2010):	R5. Lim (2009): R6. TBD:
5	9/23	<b>Memory Systems Emotion &amp; Memory 1</b>	Q4	T7. Henke (2010): T8. Holland (2010):	R7. Cabeza (2004): R8. TBD:
6	9/30	<b>Emotion &amp; Memory 2 Emotional Regulation 1</b>	Q5	T9. LaBar (2006): T10. Koole (2009):	R9. Schmeichel (2008): R10. TBD:
7	10/7	<b>Emotion Regulation 2</b>	Q6	T11. Ochsner (2005): T12. Halperin (2013):	R11. Tabibnia (2014): R12. TBD:
8	10/14	<b>Emotion &amp; Culture</b>	Q7	T13. Leersnyder (2013): T14. Hertel (2013):	R13. Butler (2007): R14. TBD:
9	10/21	<b>High-level Cognition Neuroeconomics</b>	Q8 Proposal title & abstract	T15. Blanchette (2010) T16. Rangel (2013)	R15. Sokol-Hessner (2012): R16. TBD:
10	10/28	<b>Hands-on Research Methods / Demonstration (TBD)</b>			
11	11/4		Proposal draft (MON)	<b>Proposal Presentation 1</b>	
12	11/11		Completed Proposal (THU)	<b>Proposal Presentation 2</b>	
13	11/18			<b>No Class (SfN conference)</b>	
14	11/25			<b>Thanksgiving Break</b>	
15	12/2		2 reviews of proposals	<b>Review Discussion 1</b>	
16	12/9			<b>Review Discussion 2</b>	
17	12/16		Revised Proposal		



**Text/Review Papers**

- T1. Mauss, I.B. & Robinson, M.D. (2009) Measures of emotion: A review, *Cognition & Emotion*, 23: 209-237
- T2. Mathews A, MacLeod C (2005). Cognitive vulnerability to emotional disorders. *Annual Review of Clinical Psychology*. 1:167-195.
- T3. Oatley, K. and P.N. Johnson-Laird, P.N. (2014). Cognitive approaches to emotions. *Trends in Cognitive Sciences*, 18:134–140.
- T4. Vuilleumier P, Driver J. (2007). Modulation of visual processing by attention and emotion: windows on causal interactions between human brain regions. *Philos Trans R Soc Lond B Biol Sci*, 36:837-55.
- T5. Pessoa, L., Kastner, S., & Ungerleider, L.G (2002). Attentional control of the processing of neutral and emotional stimuli. *Cognitive Brain Research*, 15: 31-45
- T6. Yiend J. (2010). The effects of emotion on attention: A review of attentional processing of emotional information. *Cognition and Emotion*, 24, 3-47.
- T7. Henke K. (2010). A model for memory systems based on processing modes rather than consciousness. *Nature Reviews Neuroscience* 11, 523-532
- T8. Holland, A.C. & Kensinger, E.A. (2010). Emotion and autobiographical memory. *Physics of Life Reviews*, 7, 88-131.
- T9. LaBar, K.S. & Cabeza, R. (2006). Cognitive neuroscience of emotional memory. *Nature Review Neuroscience*, 7:54-64.
- T10. Koole, S.L. (2009) The psychology of emotion regulation: An integrative review, *Cognition & Emotion*, 23:1, 4-41,
- T11. Ochsner, K.N., & Gross, J.J. (2005). The cognitive control of emotion. *Trends in Cognitive Sciences*, 9: 242-249.
- T12. Halperin, E. (2013). Emotion, Emotion Regulation, and Conflict Resolution. *Emotion Review* 2014 6: 68-76.
- T13. Leersnyder, J.D., Boiger, M., & Mesquita, B (2013). Cultural regulation of emotion :individual, relational, and structural sources. *Frontiers in Psychology*, 4: 55.
- T14. Hertel, P.T. & Mathews, A. (2011). Cognitive Bias Modification: Past perspectives, current findings, and future applications. *Perspectives on Psychological Science*, 6: 521-536
- T15. Blanchette I. & Richards A. (2010). The influence of affect on higher level cognition: A review of research on interpretation, judgement, decision making and reasoning. *Cognition & Emotion*, 24: 561-595
- T16. Rangel, A. & J. A. Clithero, J.A. (2013). The computation of stimulus values in simple choice. *Neuroeconomics: Decision-Making and the Brain*, 2nd ed. (edited by Paul Glimcher and Ernst Fehr).

**Research Papers**

P1. Lim, S.L. & Kim, J.H. (2005). Cognitive processing for emotional information in depression, panic, and somatoform disorder. *Journal of Abnormal Psychology, 114*: 50-61

P2. Lee, T.H., Lim, S.L., Lee, K., Kim, H.T., & Choi, J.S. (2009). Conditioning-induced attentional bias for face stimuli measured with the emotional Stroop task. *Emotion, 9*: 134–139

R1. Kassam, K.S., Markey A.R., Cherkassky, V.L., Loewenstein, G., & Just, M.A. (2013). Identifying emotions on the basis of neural activation. *PLoS One, 8*: e66032.

R2. TBD

R3. Phelps, E.A., Ling, S., & Carrasco, M. (2006). Emotion facilitates perception and potentiates the perceptual benefits of attention. *Psychological Science, 17*: 292-299.

R4. TBD

R5. Lim, S.L., Padmala, S., & Pessoa, L. (2009). Segregating the significant from the mundane on a moment-to-moment basis: Direct and indirect shaping of perceptual experience by the amygdala. *Proceedings of the National Academy of Sciences, 106*: 16841-16846.

R6. TBD

R7. Cabeza, R., Prince, S.E., Daselaar, S.M., Greenberg, D.L., Budde, M., Dolcos, F., LaBar, K.S., Rubin, D.C. (2004). Brain activity during episodic retrieval of autobiographical and laboratory events: an fMRI study using a novel photo paradigm. *Journal of Cognitive Neuroscience, 16*: 1583-1594.

R8. TBD

R9. Schmeichel, B.J., Volokhov, R.N., & Demaree, H.A. (2013). Working memory capacity and the self-regulation of emotional expression and experience. *Journal of Personality and Social Psychology, 95*: 1526–1540

R10. TBD

R11. Tabibnia, G., Creswell, J.D., Kraynak, T.E., Westbrook, C., Julson, E., & Tindle, H.A. (2014). Common prefrontal regions activate during self-control of craving, emotion, and motor impulses in smokers. *Clinical Psychological Science, 2*: 611– 619.

R12. TBD

R13. Butler, E.A., Lee, T.L., & Gross, J.J. (2007). Emotion regulation and culture: Are the social consequences of emotion suppression culture-specific? *Emotion, 7*: 30–48

R14. TBD

R15. Sokol-Hessner, P., Camerer, C.F., & Phelps, E.A. (2013). Emotion regulation reduces loss aversion and decreases amygdala responses to losses. *Social, Cognitive, and Affective Neuroscience, 8*: 341-350.

R16. TBD