PSYC 499: Science of Yoga and Meditation Syllabus – Spring 2023

Course Description: Reviews the intersection between modern empirical scientific methods and ancient contemplative practices of yoga and meditation. Students engage in hands-on experiential practices, study of yoga philosophy, and review of the scientific literature on the effects of yoga and meditation on mental health and psychological function. The goal is to provide students with an in-depth understanding of the mind-body-spirit connection through both personal practice, readings and review of empirical research.

Learning Objectives:

- 1. **Develop and strengthen a personal practice of yoga and meditation.** Understanding of yoga and meditation through hands-on practical training provided in class and other resources at USC (e.g., yoga courses through Yoga.USC.edu and the PE department).
- 2. Understand yoga and meditation in a psychological framework. A deeper understanding of yoga as a path to meditation can be understood through readings on yoga philosophy, including ancient texts and interpretations within a contemporary psychological framework.
- 3. Critically evaluate the effects of yoga and meditation on mental health and psychological function. Readings will be drawn from recent literature in Psychology, Neuroscience, and Complementary Medicine, which aim to shed light on the effects of mind-body and breath practices on both mental and physical health, including stress and resilience, immune function, attention and cognitive control, depression and anxiety, and aging.
- Instructor: Laura Baker, Ph.D. (Psychology) USC Professor of Psychology; Certified Iyengar Yoga Teacher (CIYT). Email: Ibaker@usc.edu

Prerequisite: PSYC 100g

Recommended Preparation: Some experience with yoga and meditation is recommended, but not required.

Meeting time: T Th 2-3:50 Classroom: WPH B-30 (Tuesday); PED - SB 32 (Thursday)

Location: The class will begin by acknowledging the Indigenous People of USC's land, (and an invitation to students to discover the indigenous people of their locations if the class is remote). We acknowledge who we are in relation to the material–honoring without appropriating. We also locate ourselves in space by literally turning to face the East and acknowledging the cardinal directions.

Course Format: Classes will meet twice a week. Each class meeting will include both lecture and discussion of readings, as well as an experiential practice based on yoga and meditation. Instructions and support will be provided for the experiential practices, suitable for beginners, with the expectation that students will continue the practices outside of class meetings.

Readings and Supplementary Materials: This course will expose students to a variety of readings, which include interpretations of ancient texts on mind-body practices, as well as publications describing empirical research studies from books and peer-reviewed scientific journals in Psychology, Philosophy, and Neuroscience.

Required readings:

1. Bechsgaard, G. (2013) – Gift of Consciousness. Cambridge Scholars Publishing.

- Bechsgaard, G. and McCann, G. (2021) Yoga and Alignment: From the Upanishads to B.K.S. Iyengar. Cambridge Scholars Publishing.
- 3. Recent scientific journal articles (available on Blackboard)

Supplementary materials:

- 1. Iyengar, B.K.S. (2002) Light on the Yoga Sutras of Patanjali. Thorsons Publishing.
- 2. Yoga props, including a sticky mat, two wooden or cork blocks, three blankets and a strap. Instructions for making yoga props from materials at home will also be provided.

Description and Assessment of Assignments

- (a) Participation and Discussion. Participation in this course is essential, both in terms of the mind-body practices as well as discussions of the material being covered. In addition to in-class participation, students will post questions or comments arising from assigned readings using the Discussion Forum and WIKI on Blackboard. Some posts will be made prior to class meetings (as preparation for discussion), while other reflection posts will be made at the end of the week to continue discussion. Completion and quality of questions/comments will be part of the participation grade.
- (a) *Two midterm exams* (primarily short answer and essay) will be used to evaluate comprehension of readings and discussion.
- (b) A Final Research Paper and Presentation will involve a review of recent research on mental and physical health benefits of yoga and meditation. Each student will present a summary of their findings during the last three weeks of the semester, and the final paper will be due at the time of the scheduled final exam.
- (c) Yoga and Meditation Practice. A deep understanding of yoga and meditation requires engaging in an experiential practice. Introductory yoga poses will be taught using both on-line videos available outside of class, and via instructions provided during class meetings. Students are asked to keep a *log* of their own meditation and yoga practice, indicating the type and length of practice, with the option to provide brief comments about their experience. Journaling is encouraged. Each student will also lead the class in a meditation of their choice at least once during the semester. The led meditation may also be recorded in advance and provided via Blackboard.

Grading:

Participation and Discussion	20%
Midterm Exam #1	20%
Midterm Exam #2	20%
Research Paper and Presentation	20%
Practice Logs and Reflections	20%

Assignment Submission Policy

All assignments will be submitted via Blackboard, including exams, discussion forum posts, yoga and meditation logs and reflections, and the final research paper. Comments and questions about readings for coming week will typically be due on Mondays (with some exceptions), while other assignments (e.g., reflections and WIKI posts) will be due on Fridays. Unless otherwise specified, assignments are due by 11:59 pm on the date specified.

Additional Policies

Regular attendance to class meetings is important, particularly since there will be instructions on mind-body practices. Participation grade will be based on contribution to discussions during class meetings as well as through the Discussion Forum on Blackboard. Late assignments may incur penalties

Diversity, Equity, and Inclusion: The yoga and meditation tools presented in this class have emerged from a wide range of peoples, places, historical events, and cultures. Materials (i.e., readings and guest speakers) will be intentionally included to represent voices stemming from a variety of backgrounds in terms of race, gender, culture, and identity. Diversity, Equity, and Inclusion principles will also be discussed in terms of the student practitioners themselves–who are the students in the class and how might their own culture and background affect their experience?

Props for Yoga and Meditation Practice. To engage in the experiential practices in this course, students will find it helpful to have several props. It is highly recommended to have available a yoga mat, 2-3 blankets or large towels, a pair of yoga blocks, and a yoga strap/belt. Having a yoga bolster can also be very useful, although blankets and towels can be used to create a reasonable facsimile. All of these can be purchased, but most (except for a yoga mat) can be fashioned out of materials students may already have at home. Instructions for homemade props will be provided.

Weekly Readings / Lecture Topics / Practice	Activities / Assignments
Module 1: Eight-Limbed Yoga – beginning a mind-body practice with the fou	ır outer limbs
Week 1 (Jan 10-12): The Eight-limbed path of yoga - Overview Readings:	Set up Yoga Log DF reflections - Week 1
 GOC Chapter 1: Yoga as Timeless Truth GOC Chapter 2: Yoga as Concentration Alignment Chapter 1: Higher Law and Alignment (Dharma) Lecture Topics: Course overview: Readings, Course Format, Grading 	Due Jan 13 11:59pm Begin Personal
 Introduction to Patanjali and the Eight-limbed yoga path Popularity of Yoga practice in the US Growing field of research studies Methodological issues: Confirmation Bias + Replication Crisis Concepts: Alignment, Dharma, Concentration Sutras: I.1, I.2 Practice: Intro to Iyengar Yoga – Props, sequencing, instructions 	Practice!
Week 2 (Jan 17-19): Foundational Aspects: Ethics and morality	DF comments on readings - Week 2
 Readings: Alignment Chapter 2: Practices and Attitudes that Allow for Flourishing (Yamas) Alignment Chapter 3: Establishing Healthy Mental States (Niyamas) Journal reading on Mental Health Benefits: Balasubramaniam, M., Telles, S., Doraiswamy, P.M. (2012). Yoga on our minds: A systematic Review of Yoga for Neuropsychiatric disorders. Front Psychiatry. 2012; 3: 117. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555015/ Lecture Topics: Foundations of ethical codes: Yamas and Niyamas – The 1st and 2nd limbs Mental Health Benefits of Yoga Concepts: Yamas, Niyamas Sutras: II.30, II.32 on Yamas and Niyamas and their effects (II.35-45) Practice: Applying Ahimsa and Satya on and off the mat	Due Mon Jan 16 11:59 pm
Week 3 (Jan 24-26): Movement – A Foundation for Attention and Concentration	DF comments on readings - Week 3
 Readings: 1. GOC Chapter 3: Yoga as Purification (triguna theory) 2. Alignment Chapter 4: Temple of the Body (Kośas) 3. Journal readings on Depression: Streeter, C. C., Gerbarg, P.L., Jensen, J.E. (2017). Treatment of major depressive disorder with Iyengar Yoga and coherent breathing; A 	Due Mon Jan 23 11:59 pm

 randomized controlled dosing study. J. Altern. Complement. Med., 23(3): 201-207) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC535962/. Shapiro, D., et al. (2007). Yoga as a complementary treatment of depression: effects of traits and moods on treatment outcome. <i>Evid. Based Complement. Alternat. Med.</i> 4(4):493-502. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2176141/ Journal reading on Anxiety: Simon NM, Hofmann SG, Rosenfield D, et al. Efficacy of Yoga vs Cognitive Behavioral Therapy vs Stress Education for the Treatment of Generalized Anxiety Disorder: A Randomized Clinical Trial. <i>JAMA Psychiatry</i>.2021;78(1):13–20. https://doi-org.libproxy2.usc.edu/10.1001/jamapsychiatry.2020.2496 <i>Lecture Topics:</i> Movement and Stillness Asanas (3rd limb) Research: Anxiety and Depression <i>Concepts:</i> Gunas Theory; Kośas: Vrttis <i>Sutras:</i> 1.3-1.5 (vrttis)- the effects of stillness, or lack thereof; Sutra I.12 (on practice) <i>Practice:</i> Rajas and Tamas in Asanas (for the Annamaya kosha) Week 4 (Jan 31 – Feb 2): Inner Landscape – the Mind <i>Reeadings:</i> <i>GOC Chapter 4</i> (Yogic Psychology: Knowing the Inner Landscape) Journan reading on mind-wandering: Hasenkamp, W., Wilson-Mendehall CS, Duncan, E., Barsalou, L.W. (2012). Mind-wandering and attention during focused meditation: A fine-grained temporal analysis of fluctuating cognitive states. <i>Neuroimage</i>, 59: 750-760. https://doi.org.ilibproxy2.usc.edu/10.1016/j.neuroimage.2011.07.008 Lecture Topics: Consciousness and components of the mind What's beneficial and harmful? Research: Concentration; Mind-Wandering Concepts: Citta, Manas, Buddhi, Ahamkara, Purusa, Prakrti Sutras: 1.4.1.5 (Vrttis) <i>Practice:</i> Using Asana to rein in the mind	DF comments on readings - Week 4 / Due Mon Jan 30 11:59 pm Yoga and Meditation Log and Reflections #1 / Due Fri Feb 3 11:59 pm
<u>Week 5 (Feb 7-9): Breath</u> <i>Readings:</i>	DF comments on readings - Week 5 / Due Mon Feb 6 11:59 pm
 Alignment Chapter 5: Breath as Spirit (pranayama) Journal reading on Breathing: Jayawardena, R., Ranasinghe, P., Ranawaka, H., Gamage, N., Dissanayake, D., and Misra, A. (2020). "Exploring the Therapeutic Benefits of Pranayama (yogic Breathing): A Systematic Review. International Journal of Yoga, 13(2): 99-110. <u>https://link.gale.com/apps/doc/A623759096/HRCA?u=usocal_main&sid=book</u> <u>mark-HRCA&xid=9473368c</u> Journal reading on Mantras/Sacred Sound: Harne, B. P., & Hiwale, A. S. (2018). EEG spectral analysis on OM mantra meditation: A pilot study. Applied 	

Psychophysiology and Biofeedback, 43(2), 123-129. <u>https://doi.org/10.1007/s10484-018-9391-7</u> <i>Lecture Topics:</i> Pranayama – the 4 th limb Sacred Sound Research: Breath; Mantras <i>Concepts:</i> Vayus <i>Sutras:</i> I.34 (on the benefits of exhalation and retention after exhalation) <i>Practice:</i> Intro to Pranayama	
Week 6 (Feb 14-16): MODULE #1 REVIEW and MID-TERM #1	Midterm Exam #1
 <i>Readings:</i> Review prior readings <i>Review:</i> Limbs 1-4 Concepts: Gunas, Vrttis, Kośas, Klesas, Citta Research on Depression and Anxiety, Mind-wandering, Well-being <i>Practice:</i> Restorative Yoga Practice Midterm Exam #1 (Thursday, Feb 16)	

Module 2: Meditation through Deeper Study - Inner limbs of the eightfold path of yoga	
 Week 7 (Feb 21-23): Two Wings of Yoga: Practice and Detachment Guest Lecturer: Bharathi Venkatachalapathi, A.V. BAMS, FAIHM, Readings: GOC Chapter 5 (Yoga Discipline: Transformation through Integrated Practice): Abhyasa and Vairagya Ayurveda Handout and Dosha Quiz 	DF comments on readings - Week 7 / Due Wed Feb 22 11:59 pm Yoga and
 Lecture Topics: Twin Pillars of Practice and Detachment Research: Attention and Cognitive Control Concepts: Abhyasa and Vairagya Sutras: I.12 (abhyasa and vairagya) Practice: TBD 	Meditation Log and Reflections #2 / due Sunday Feb 26 11:59 pm
 Week 8 (Feb 28 – Mar 2): Turning Inward and building resilience Guest Lecturer: Dr. Alyson Ross Readings: GOC Chapter 6 (The Many Faces of Detachment) – Vairagya Alignment Chapter 7; The beginning of the movement inward Journal readings on Stress: Sharma, M. (2014) Yoga as an Alternative and Complimentary Approach for Stress Management. A Systematic Review. Journal of Evidence-based Complementary and Alternative Medicine. 19 (1) 59-67. https://doi.org/10.1177/2156587213503344 Ross, A., & Thomas, S. (2010) Health Benefits of Yoga and Exercise: A Review of Comparison Studies, J of Alternative and Complementary Medicine 16(1): 3-12 http://doi.org/10.1089/acm.2009.0044 Lee, L.J., Shamburek, R., Son, H., Wallen, GRoss, A. (2022). Effects of a yoga-based stress reduction intervention on stress, psychological outcomes and cardiometabolic biomarkers in cancer caregivers: A randomized controlled trial. Plos One, 17(11). https://link.gale.com/apps/doc/A726081107/HWRC?u=usocal_main&sid=b ookmark-HWRC&xid=0dd20c68 Lecture Topics: Pratyahara – the fifth limb Practice and detachment Research: Stress, resilience, anti-inflammation 	DF comments on readings - Week 8 / Due Mon Feb 27 11:59 pm

 Week 9 (Mar 7-9): Obstacles <i>Readings:</i> GOC: Chapter 8 (Nine roadblocks) Journal articles on Brain and Nervous System: Sullivan, M. B., Erb, M., Schmalzl, L., Moonaz, S., Noggle-Taylor, J., and Porges, S. W. (2018). Yoga Therapy and Polyvagal Theory: The Convergence of Traditional Wisdom and Contemporary Neuroscience for Self-regulation and Resilience. Front. Hum Neurosci, 12: 67. doi: 10.3389/fnhum.2018.00067 <u>https://www-ncbi-nlm-nih-gov.libproxy1.usc.edu/pmc/articles/pmid/29535617/</u> Gard, T., Noggle, J.J., Wilson, A. (2014). Potential self-regulatory mechanisms of yoga for psychological health. Front. Hum Neurosci. 8:770 <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5359682/</u>. 	DF comments on readings - Week 9 / Due Mon Mar 6 11:59 pm	
Lecture Topics:		
 Obstacles: Roadblocks in the practice Many options for practice! Research: Effects of Yoga on Brain and Sympathetic and Parasympathetic Nervous System <i>Concepts:</i> Nadis (ida, pingala, susumna) <i>Sutras:</i> 1.30-1.33 (obstacles); 1.32-39 (pertains to nervous system and fight or flight) <i>Practice:</i> Standing Asanas, Preparing for Sirsasana, Viparita Karani and Setu Bandha; Seated Meditation with focus on heart and third eye; or "breath as a bridge" 		
SPRING BREAK – No class meetings March 14-16		
<u>Week 10 (Mar 21-23): Contemplative Practice – Moving Inward</u> Guest Lecturer: Dr. Alyson Ross Readings:	DF comments on readings - Week 10 / Due Mon Mar 20 11:59 pm	
 Alignment Chapter 7: Beginning of Movement Inward GOC: Chapter 9 (Contemplative Practice: Finding Solace and Perspective) Journal readings on Immune System: Djalilova, D.M., Schultz, P.S., Berger, A.M., Case, A.J., Cupzyk, K.A., Ross, A.C. (2019) Impact of Yoga on Inflammatory Biomarkers: A Systematic Review. Biological Research for Nursing, Vol 21(2) 198-209 https://doi-org.libproxy2.usc.edu/10.1177/1099800418820162 Falkenberg RI, Eising C, Peters ML. (2018). Yoga and immune system functioning: a systematic review of randomized controlled trials. J Behav Med. 2018 Aug;41(4):467-482. Epub 2018 Feb 10. PMID: 29429046. DOI: 10.1007/s10865-018-9914-y https://rdcu.be/c2HS3 Lecture Topics: Pratyahara – the 5th limb 		
 Many kinds of practice! (continued) Research: Yoga and the Immune System Concepts: 		

Sutras: I.33 – I.39 (Varieties of Meditative Practice)	
Practice: Immunity Sequence	
Week 11 (Mar 28 – 30): Higher States of Consciousness Readings: • GOC Chapter 11 The Inner Treasures: Blessings of Yogic Trance • Alignment Chapter 8: Alignment and Higher States of Consciousness • Alignment Chapter 9: Models of Development and Transformation • Journal readings on Subtle Body and Transcendence: • Loizzo, J.J. (2016). "The Subtle Body: an Interoceptive Map of Central Nervous System Function and Meditative Mind-brain-body Integration." Annals of the New York Academy of Sciences, 1373(1):78-95. doi: 10.1111/nyas.13065 https://nyaspubs-onlinelibrary-wiley-com.libproxy2.usc.edu/share/FWWMWSS5RPZB7JGX9C8Q?target=1_0.1111/nyas.13065 • Wahbeh, H., Sagher, A., Back, W., Pundhir, P., and Travis, F. (2018). "A Systematic Review of Transcendent States Across Meditation and Contemplative Traditions." Explore (NY), 14(1): 19-35. doi: 10.1016/j.explore.2017.07.007 Lecture Topics: • Dharana, Dhyana, Samadhi – 6 th , 7 th , and 8 th limbs • Research: Subtle body and transcendence	DF comments on readings - Week 2 / Due Mon Mar 27 11:59 pm Yoga and Meditation Log and Reflections #3 / due Fri Mar 31 11:59 pm
<i>Concepts:</i> prajna, chakras, mind states <i>Sutras</i> : I.2, I.17-18, I.41-51 <i>Practice:</i> Developing and adhering to a personal practice	
Week 12 (Apr 4-6) MODULE #2 REVIEW AND MID-TERM EXAM #2	Midterm Exam #2
 Readings: Review Module #2 readings Limbs 5-8 Concepts: Gross and Subtle Body Research on Immune Function, Transcendence Practice: Restorative Yoga Practice 	
Midterm Exam #2 (Thursday, April 6)	

Module 3: Student Presentations	
Weeks 13-15 (Apr 11-13, Apr 18-20, Apr 25-27): Student Presentations of Recent Research Readings: TBD, based on student presentations	Post presentation slides on Blackboard prior to class during which you are presenting
FINAL Project, due on scheduled day of final exam (Tuesday May 4 by 4 pm) Yoga and Meditation Logs and Reflections #4 due	FINAL PAPER due Tues May 4 @4:00 pm
	Yoga and Meditation Log and Reflections #4 / due Fri Apr 28 11:59 pm

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on Research and Scholarship Misconduct. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The review process can be found at https://sjacs.usc.edu/students/academic-integrity/

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at <u>osas.usc.edu</u>. You may contact OSAS at (213) 740-0776 or via email at <u>osasfrontdesk@usc.edu</u>.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086 eeotix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298 usc-advocate.symplicity.com/care_report Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776 osas.usc.edu

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101 diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-3340 or otfp@med.usc.edu

chan.usc.edu/otfp

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.