

**THE UNIVERSITY OF TENNESSEE
COLLEGE OF SOCIAL WORK**

**SW 528: Neurophysiologic Development in Social Work
Section 302, CRN No. 81548
1 credit hour
First Summer Session 2018**

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Class Time: Room 234, Thursdays 10:00am-12:00pm CST (May 31-June 28; June 7th via Zoom; July 5th no class)

Office Hours: Room 268, Thursdays 3:00pm-4:00pm or by appointment

Code of Conduct

It is the student's responsibility to have read the College of Social Work Ethical Academic and Professional Conduct Code that is in the College of Social Work MSSW Handbook (www.csw.utk.edu). Students are also expected to sign and adhere to the Social Work Field Placement Code of Conduct.

The Honor Statement

An essential feature of The University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity. (*Hilltopics*).

University Civility Statement

Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Civility enhances academic freedom and integrity, and is a prerequisite to the free exchange of ideas and knowledge in the learning community. Our community consists of students, faculty, staff, alumni, and campus visitors. Community members affect each other's well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected. Affirming the value of each member of the university community, the campus asks that all its members adhere to the principles of civility and community adopted by the campus:

<http://civility.utk.edu/>

Disability

If you need course adaptations or accommodations because of a documented disability or if you have emergency information to share, please contact The University of Tennessee Office of Disability Services at 100 Dunford Hall (865) 974-6087. This will ensure that you are properly registered for services.

Dimensions of Diversity

The College of Social Work and the University of Tennessee welcome and honor all people. In accordance with the U.S. National Association of Social Workers (NASW) and the U.S. Council on Social Work Education (CSWE 2015 Educational Policy Statement), “the dimensions of diversity are understood as the intersectionality of multiple factors including” age, class, color, culture, mental or physical disability and ability, ethnicity, gender, gender expression, gender identity, immigration status, marital status, national origin, political ideology, race, regionality, religion and spirituality, sex, sexual orientation, and tribal sovereign status. The College values intellectual curiosity, pursuit of knowledge, and academic freedom and integrity. “A person’s diverse life experiences may include oppression, poverty, marginalization, and alienation as well as privilege, power, and acclaim” (CSWE 2015 Educational Policy Statement). The College of Social Work promotes social justice and social change, and strives to end discrimination, oppression, poverty, and other forms of social injustice.

COURSE DESCRIPTION

This course will examine neurophysiologic development. Neurophysiologic development provides a foundation for understanding the processes of human development and how these processes are influenced by culture and the environment. The course examines the effects of risk and protective factors at various ecological levels, such as attachment, poverty, and culture. This course also covers genetics and how genes express themselves as well as genetic potentials. Typical development will be covered as well as atypical developmental patterns that are consistent with neurodevelopmental disorders. Processes critical to human behavior and risk and resilience for vulnerable populations are emphasized to understand individual or family behavior.

Content in this course will be illustrated and centered around a case study approach in which students read case studies that are paired with theoretical and research material. Class discussion about the theoretical and research material will be linked to case studies, and students will use theory and research to construct hypotheses about individual or family adaptation to the environment. In addition, students will practice forming research questions and going to the literature to assess what is known about their questions.

COURSE RATIONALE

To practice accountably and effectively, social workers must be able to understand their clients and their presenting issues within their clients’ developmental contexts. In supportive environments, individuals flourish as they progress through developmental stages and stage-salient tasks. Other environments, because of risk factors associated with them, are less supportive of wellbeing. Even so, brain plasticity provides humans with an amazing capacity to adapt to these less supportive and sometimes frankly maladaptive environments, although sometimes at great cost to themselves. Especially for young children, the costs to the developing brain of less adaptive environments are profound because their brains actually become organized around repeated experiences within these less adaptive environments. Also, genetics play a role in terms of gene expression and potential in regards to these less adaptive environments. Neurophysiological changes and behaviors resulting from these earlier less adaptive environments are often conceptualized

by clinicians as psychopathology or presenting problems of clients. Understanding human development as a series of processes mediated by the brain within an environment-dependent context profoundly reframes not only our understanding of our clients and their presenting problems, but also how to intervene appropriately with clients and their environments. This different understanding of human development also suggests the critical importance of effective prevention programs and social policies that promote wellbeing, as well as interventions directed at changing the larger environments of individuals. Thus, knowledge gained in this course will allow social workers not only to better understand, contextualize, and assess clients and their presenting problems, but also to develop more appropriate interventions, prevention programs, or policies for working with or for the benefit of clients and for the necessary environments to support human wellbeing.

COURSE COMPETENCIES

By the completion of this course, the students are expected (through course activities, assignments, and/or exams) to:

1. Explain the roles of neurophysiology, adaptive and maladaptive environments, and experiences, including the effects of trauma and chronic stress, on brain development and the role of genetics and epigenesis in development during the sensitive period of the first three years of life and across the life span. (EBIP 4.1, 6.1) *(content: basic introduction to Mendelian genetics and the Human Genome Project; gene expression; effects of stress and trauma on hormones, brain development, and gene expression; effects of parenting on brain development and gene expression; explain how this research can impact practice and service delivery; Adverse Childhood Experiences (ACEs) study and related literature describing lifelong impact of early adverse experiences, including implications for individual and population health outcomes and ACEs as a public health framework; neurophysiology of toxic stress, trauma, and the cycle of adverse childhood experiences within families and communities, including related policies and practices such as trauma-informed care; impact of ACEs on child development and importance of fostering resilience and healthy “serve and return” behaviors in infancy (i.e. attachment) and how toxic stress and ACEs can impact a child’s “air traffic control” system (i.e. cognitive development)*
2. Explain the interaction between nature (genetic potential of an individual) and nurture (effect of the environment on the individual) as it relates to cultural differences and disparities by race/ethnicity, class, sex, and sexual orientation. (EBIP 2.1) *(content: traits, phenotypes, health disparities in race; kindling hypothesis; mundane extreme environmental stress; tend and befriend hypothesis; epigenesis; effects of early deprivation on brain development)*
3. Explain how neurophysiological processes may place individuals at risk or, conversely, how environments of at-risk individuals contribute to neurophysiological processes that increase their levels of vulnerability. (EBIP 7.1) *(Content: epigenesis, allostasis, attachment, stress, trauma, kindling; HPA axis; amygdala; pruning; synaptogenesis; windows of opportunity)*

Grading, Assignments, and Course Expectations

This course provides information that is crucial to the rest of your MSSW studies. You can expect to devote about 6-8 hours per week to the class, including in-class time, readings, preparation of papers, and communication with the professor and your fellow students. There are no short-cuts; participation and readings are necessary for you to learn this material, which is not only a foundation for the rest of your studies, but also for your career as a social worker.

Your grade in this class is based on three quizzes and one group presentation.

Assignment	Value	Related Course Competencies	Dimensions of Course Competencies
Quiz 1	25%	1-3	Knowledge
Quiz 2	20%	1-3	Knowledge
Quiz 3	20%	1-3	Knowledge
Group Presentation	35%	1-3	Knowledge; Cognitive and affective processes
Total	100%		

Grading Values

The following grading scale will be used for the final course grade.

Grade	Point range	Standard
A	95-100	Outstanding/Superior – Exceptional performance. Consistently exceeds expectations.
B+	90-94	Very Good – Student consistently meets and occasionally exceeds normal expectations for the course.
B	85-89	Good – Student consistently meets normal expectations for the course.
C+	80-84	Average – There is unevenness in grasping course content. Student is inconsistent in meeting the normal expectations for the course.
C	70-79	Poor - There is a lack of understanding of course content. Student does not meet course expectations.
F	69 or below	Very Poor – There is a lack of attendance or incomplete or unacceptable assignments. Course expectations are not met.

Required Readings

There is no required textbook for this course. Journal articles and other required reading material, videos, and lectures will be posted on the Canvas course site under each unit.

Weekly Critical Thinking Exercises (CTEs; Not graded)

Each week, students will complete on their own a Critical Thinking Exercise (CTE) demonstrating understanding and application of that week's readings. Please check Canvas for more specific instructions and tips for writing your CTEs.

CTEs prepared individually will be the basis for weekly in-class discussions and group presentations, however they will not be graded. Think of them as studying for your quizzes! The more energy and focus you devote to these CTEs, the more you will get out of this course.

Quizzes (65% of final grade)

Each quiz must be completed by the deadline provided in the Course Outline.

This course has three quizzes worth 65% of your total grade. The purpose of the quizzes is for class preparation and to ensure students have read and understand the material. It also provides timely feedback on student grades. The format for quizzes will include true/false, multiple-choice, and short answer questions covering the content of each unit's readings and lectures.

Each quiz must be completed by the due date provided in the Course Outline. Quizzes will be posted on a rolling basis no later than one week before the quiz is due and will be unavailable after the deadline has passed. It is strongly recommended that you complete each quiz immediately following class on June 14th, June 21st and June 28th. *Quizzes not completed by deadline will be given a 0 for that quiz, which may result in failure of the course and dismissal from the program.*

You may only take each quiz once so please make sure you do not accidentally close the exam because you will not be allowed access to it again. All exams will close after 1 hour. You may use any of your resources to answer the questions but you may not talk to anyone about it. This is an opportunity for you to think through the material on your own and apply your knowledge. Discussing this exam will lead to your grade turning into a zero. Beginning this exam means that you acknowledge these rules and agree to them. Good luck everyone.

Group Presentation (35% of total grade)

In groups of 3-4 assigned by the instructor at the beginning of the semester, students will prepare a 15-20 minute teaching exercise for the class based on a Critical Thinking Exercise (CTE) provided for that unit. These teaching exercises should be well prepared and interactive, showcasing students' understanding of required course material and ability to synthesize complex concepts into easy to understand language for all audiences. The format for the presentation should be creative, cohesive, and may include the use of PowerPoints, handouts, class engagement exercises, skits, etc. More detailed information,

including group assignments, due dates, and grading rubric can be found on the course website.

Note: All group members must actively participate in the presentation and contribute equally to the group process. It is highly inappropriate for students to “not pull their weight” or to complete other student’s assigned work. Disrespectful behavior or subpar contributions will not be tolerated, and the instructor reserves the right to grade students on an individual basis if this occurs.

Late Assignment Policy

All quizzes and the group presentation are expected to be completed by the specific due date provided in the Course Outline. Extension requests are permitted on a case by case basis and only with documentation relating to an extenuating circumstance submitted in advance or within 24 hours of the posted due date and approved by the instructor in writing. Extenuating circumstances include, but are not limited to, funeral of close relative, hospitalization, planned medical procedure, etc. Extension requests relating to student error or technological issues will not be considered.

Class Participation

This is an intense course that takes quite a bit of time. Expect to spend about 6-8 hours per week, including time reading, viewing videos and recorded lectures, and completing both graded and non-graded assignments.

There is no substitute for active, ongoing participation in this course. Class exercises, videos and speakers will provide examples or illustrations of important material. In a good class, you learn as much from each other as you do from the professor, so students are required to be part of class discussions. As this is a very short Summer course, attendance for all scheduled classes is required.

UT CSW acknowledges students’ right to privacy. You are under no obligation to share personal information. Therefore, when dealing with personal information either in class or in an assignment, share only to the level at which you are comfortable.

Course Outline

Note: All unit material and CTEs need to be completed prior to the date of each unit. Required readings may be amended during the semester at the discretion of the instructor.

May 31: Unit 1 - Course Introduction and Expectations

- Review of syllabus, course expectations, assignments and Canvas course site. ***Students should study the syllabus and the Canvas course site before class begins. You are responsible for all information in the syllabus.*** Bring any

questions you have to class. It is also recommended you get a head start on the Unit 2 readings.

- Review of: theories of human development; Frameworks Institute information; and Adverse Childhood Experiences (ACEs) as a public health framework.

June 7: Unit 2 - Resilience and Introduction to Epigenetics

Required Reading/Viewing:

1. Combs-Orme, T. (2013). Epigenesis and the social work imperative. *Social Work, 58*(1): 23-30. doi: 10.1093/sw/sws052
2. Karatoreos, I. N., & McEwen, B. S. (2013). Annual research review: The neurobiology and physiology of resilience and adaptation across the life course. *Journal of Child Psychology and Psychiatry, 54*(4), 337-347.
3. O'Dougherty Wright, M., Masten, A.S. & Narayan, A.J. (2013). Resilience processes in development: Four waves of research on positive adaptation in the context of adversity. In S. Goldstein & R.B. Brooks, eds. (pp. 15-37). *Handbook of Resilience in Children*.
4. Canvas material and videos

June 14: Unit 3 Genetics and Epigenetics

***Recommended completion of Quiz 1**

Required Reading/Viewing:

1. Kim, B. & Evans, G.W. (2010). Family resources, genes, and human development. In *Biosocial Foundations of Family Processes*. Proceedings, National Symposium on Family Issues, p. 221.
2. Sullivan, S. (2013). Inheriting racist disparities in health: Epigenetics and the transgenerational effects of white racism. *Critical Philosophy of Race, 1*(2), 190-218. [doi: 10.1353/por.2013.0018]
3. Szyf, M., & Bick, J. (2013). DNA methylation: A mechanism for embedding early life experiences in the genome. *Child Development, 84*(1), 49-57. doi:10.1111/j.1467-8624.2012.01793.x.
4. Thayer, Z.M. & Kuzawa, C.W. (2011). Biological memories of past environments. *Epigenetics, 6*(7), 798-803.
5. Documentary film(s) and other material on Canvas
6. Dr. Terri Combs-Orme recorded guest lecture

Supplementary Reading:

- Mayer, L.S. & McHugh, P.R. (2016). Sexuality and Gender: Findings from the biological, psychological, and social sciences. *The New Atlantis: A Journal of Technology and Society, 50*, 1-143. Washington, D.C.

- Roselli, C.E. (2017). Neurobiology of Gender Identity and Sexual Orientation. *Journal of Neuroendocrinology*.

June 14: Unit 4 - Brain and Behavior

***Recommended completion of Quiz 2**

Required Reading/Viewing:

1. Belsky, J., & de Haan, M. (2011). Annual research review: Parenting and children's brain development: The end of the beginning. *Journal of Child Psychology and Psychiatry*, 52(4), 409-428.
2. Fagiolini, M., Jensen, C.L. & Champagne, F.A. (2009). Epigenetic influences on brain development and plasticity. *Current Opinion in Neurobiology*, 19, 207-212.
3. Fox, S.E., Levitt, P. & Nelson, C.A. (2010). How the timing and quality of early experiences influence the development of brain architecture. *Child Development*, 81(1), 28-40.
4. Documentary film(s) and other material on Canvas
5. Dr. Terri Combs-Orme recorded guest lecture

Supplementary Reading:

- Perry, B.D. (2002). Brain structure and functions I. Basics of organization. pp. 1-19.
- Sinclair, D., Purves-Tyson, T. D., Allen, K. M., & Weickert, C. S. (2014). Impacts of stress and sex hormones on dopamine neurotransmission in the adolescent brain. *Psychopharmacology*, 231(8), 1581-1599.

June 28: Unit 5 - Stress, Trauma, and Hormones

***Recommended completion of Quiz 3**

Required Reading/Viewing:

1. Cowan, C. S. M., Callaghan, B. L., Kan, J. M., & Richardson, R. (2016). The lasting impact of early-life adversity on individuals and their descendants: potential mechanisms and hope for intervention. *Genes, Brain and Behavior*, 15, 155-168.
2. Dich, N., Lange, T., Head, J., & Rod, N. H. (2015). Work stress, caregiving, and allostatic load: prospective results from the Whitehall II cohort study. *Psychosomatic medicine*, 77(5), 539-547.
3. Geronimus, A., Hicken, M., Keene, D. & Bound, J. (2006). "Weathering" and age patterns of allostatic load scores among Blacks and Whites in the United States. *American Journal of Public Health*, 96(5), 826-833.
4. Lupien, S.J., McEwen, B.S., Gunnar, M.R. & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behavior and cognition. *Nature*, 10, 434-445.
5. Manuck, S.B. & McCaffery, J.M. (2010). Genetics of stress: Gene-stress correlation and interaction. Chapter 31 (pp. 1-20) in *Handbook of Behavioral Medicine: Methods and Applications*. New York: Springer.

6. Shonkoff, J. and Garner, A. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1). 129, e232; doi: 10.1542/peds.2011-2663.
7. Waller, R. J. (2003). Application of the kindling hypothesis to the long-term effects of racism. *Social Work in Mental Health*, 3(3), 81- 89.
8. Documentary film(s) and other material on Canvas
9. Dr. Terri Combs-Orme recorded guest lecture

Supplementary Reading:

- Weiss, S.J. (2007). Neurobiological alterations associated with traumatic stress. *Perspectives in Psychiatric Care*, 43(3), 114-122.

July 5: No Class

SW 528 Course Outline

Unit	Topic	Date	Quiz Schedule/ Due Dates
1	Course Introduction and Expectations	5/31	
2	Resilience and Introduction to Epigenetics	6/7 (via Zoom)	
3	Genetics and Epigenetics*	6/14	Quiz 1 (Units 1-3) Due: 6/17
4	Brain and Behavior*	6/21	Quiz 2 (Unit 4) Due: 6/24
5	Stress, Trauma, and Hormones*	6/28	Quiz 3 (Unit 5) Due: 7/1
	Course Evaluation and wrap-up	7/5 (no class)	

****Group presentations will be held.***