

THE UNIVERSITY OF TENNESSEE, KNOXVILLE  
COLLEGE OF SOCIAL WORK

SW 528 Neurophysiologic Development in Social Work  
Section 501  
1 credit hour  
Summer, 2018

**Instructor:** Stefanie R. Pilkay, Ph.D.

**Phone:** 865-454-1112

**Office:** Email and Zoom only

**Email:** [spilkay@vols.utk.edu](mailto:spilkay@vols.utk.edu)

**Online Class Time:** 5:30 – 6:30 pm EST

**Class Dates (optional)** 7/9/2018, 8/9/2018

**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](http://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 Services**

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 become organized around repeated experiences within these less adaptive environments. Also, genetics play a role in terms of gene expression and potential regarding 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 epigenetics 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).*

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; epigenetics; 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: epigenetics, allostasis, attachment, stress, trauma, kindling; HPA axis; amygdala; pruning; synaptogenesis; windows of opportunity)*

### **CSW Standards of Professional Conduct**

There are certain cognitive, emotional, and character requirements that students must possess that provide the College of Social Work (CSW) with reasonable assurance that students can complete the entire course of study and participate fully in all aspects of social work education and the professional practice of social work. Students in the CSW are expected to possess the following abilities and attributes at a level appropriate to their year in the program. They are expected to meet these standards in the classroom as well as in their practicum.

- **Professional Behavior.** The social work student behaves professionally by knowing and practicing within the scope of social work, adhering to the National Association of Social Workers Code of Ethics and the Tennessee Board of Social Worker Standards of Conduct (1365-01-.10) as found in the Tennessee Board of Social Work Certification and Licensure General Rules and Regulations, <http://sharetn.gov.tnsosfiles.com/sos/rules/1365/1365-01.20151222.pdf>
- **Interpersonal Skills.** The social work student communicates and interacts with other students, faculty, staff, clients, and professionals in a professional manner, and demonstrates respect for and consideration of other students, faculty, staff, clients, and professionals in spoken, written, and electronic form. The social work student expresses her/his ideas and feelings clearly and demonstrates a willingness and ability to listen to others.
- **Self-awareness.** The social work student is willing to examine and change his/her behavior when it interferes with her/his working with clients and other professionals, and can work effectively with others in subordinate positions as well as with those in authority.

- **Professional Commitment.** The social work student has a strong commitment to the essential values of social work (the dignity and worth of every individual and her/his right to a just share of the society's resources). The social work student is knowledgeable about and adheres to the National Association of Social Workers Code of Ethics and the Rules of the Tennessee Board of Social Worker Certification.
- **Self-care.** The social work student recognizes the signs of stress, develops appropriate means of self-care, and seeks supportive resources if necessary.
- **Valuing Diversity.** The social work student appreciates the value of human diversity. Social work students do not impose their own personal, religious, sexual, and/or cultural values on other students, faculty, staff, clients or professionals. Social work students are willing to serve in an appropriate manner all persons in need of assistance, regardless of the person's age, class, race, religious affiliation (or lack of), gender, disability, sexual orientation, and/or value system.

Except for alleged academic dishonesty, which shall be addressed through the procedures set forth in [Hilltopics](#), code of conduct violations will be addressed through the CSW Professional Standards Committee.

### **Academic Standards of Conduct**

All social work majors are expected to abide by the University **Honor Statement**. In social work classes, violations of the honor statement include cheating, plagiarism, collaborating on a graded assignment without the instructor's approval, providing or receiving unauthorized information during an examination or possession and/or use of unauthorized materials during an examination, submitting the same assignment for credit in more than one course, forging the signature of another or allowing forgery by another on a class attendance sheet, or other infractions listed in "*Hilltopics*". These violations are serious offenses, subject to disciplinary action that may include failure in a course and/or dismissal from the University. The instructor has full authority to suspend a student from his/her class, to assign an "F" for an assignment or examination or to assign an "F" in the course. See <https://hilltopics.utk.edu> for more detailed information.

### **Inclement Weather**

Class will be cancelled only if the University is closed due to inclement weather. Campus and local radio and TV stations will be notified, so that appropriate announcement may be made. If class is cancelled, any assignments due that day will be due the next time class meets.

### **Required Readings**

There is no required text for this course. All readings and course materials are on the Canvas site for this class and can be downloaded or read from there.

## **Organization of Course and Canvas**

This is an online course that is in a primarily self-study format. Everything you need for the course is online at the CANVAS site for this course. You can gain access to the course site through <http://online.utk.edu/>.

To orient you to the course, an **optional** online session will be held on **Monday, July 9, 2018, 5:30 – 6:30pm EST**. During this session, I will review the course materials, assignments, and tools you can use on Canvas to make the class successful for you. It is hoped that by providing this online, primarily self-study format you will be able to fit this course to your schedule more easily. An additional **optional** online session will be held on **Thursday August 9, 2018, 5:30-6:30pm EST** to discuss feedback on the course and practice implications.

Class content is divided into three groups—Genetics and Human Development/Behavior; Brain and Behavior; and Stress, Trauma, and Hormones. Course content may include readings, online lectures, PowerPoint presentations, videos, and web sites. At the end of each of these content groups you will have an assignment, with a further summary assignment for the course.

## **Contacting the Instructor**

I attempt to remain readily available to students during the semester. If for any reason you are struggling, have questions about an assignment, need to let me know what is going on with you, or just want to talk, please do not hesitate to contact me. I am easily contacted by email ([spilkay@vols.utk.edu](mailto:spilkay@vols.utk.edu)) and will reply as soon as possible. During the semester, I monitor my email closely. We can set up a phone conversation, meeting, or converse by email, or we can meet online.

## **Plagiarism**

It is assumed that all your work is original and that you are aware of appropriate citation rules. If you are not **completely** familiar with citation rules, please review them at the UT Library web site: <http://www.lib.utk.edu/instruction/learnhow/>. This web site has other tutorials as well on how to use the library effectively, search strategies, etc., that may be of help. Please be aware that copying material verbatim from the web is considered plagiarism unless it is appropriately cited as verbatim material. Canvas provides the means for submitted papers to be automatically scanned to determine if they include plagiarized material. Please assume that your paper will be automatically scanned when it is submitted. If a significant portion of your paper will be or has been submitted verbatim or close to verbatim to other classes, please let me know.

## **Assignments and Grading**

***Unit 1 test*** (Course Competencies 1,2, & 3; Dimensions Knowledge, Values) will cover any content from the required readings, websites, videos, and lectures. **Due 7/16/18**

***Unit 2 test*** (Course Competencies 1,2, & 3; Dimensions Knowledge, Values) will cover any content from the required readings, websites, videos, and lectures. **Due 7/23/18**

***Unit 3 test*** (Course Competencies 1,2, & 3; Dimensions Knowledge, Values) will cover any content from the required readings, websites, videos, and lectures. **Due 7/30/18**

***Final Paper*** (Course Competencies 1,2,3; Dimensions Knowledge, Values, Skills)

NOTE: A beneficial way to write this paper is to work on it throughout the class. As you find information that likely applies, you could include it at that time.

You will be presented with a vignette. Applying what you have learned in this course, you will write **no more than** a 7-page double-spaced paper (**not** counting title page, abstract, or references) and using Times New Roman font size 12 and 1" margins throughout that applies a neurophysiological framework to the person in the vignette. Using this framework, you will attempt to make sense of the various dynamics and issues of that person. It is important not to force this framework upon the person, using it indiscriminately, but to apply it thoughtfully and in a manner that helps make sense of the individual. The vignette provides ample opportunities to explain current or previous issues within a neurophysiological framework. Please recognize that a 7-page paper is very short given the vignette. It will be very important to be succinct so you have room to discuss various neurophysiological processes that the person in the vignette might be experiencing.

In this paper, please use no more than a single paragraph to summarize the case and issues you will be discussing. Although in a clinical assessment you would have a more thorough presentation of the case, it is not necessary for this paper. Also, it is not necessary to discuss in detail the actual science underlying some of the neurophysiological effects. However, it is important to provide sufficient information from the vignette that you can make your case.

For example, if you were writing a paper about "Clarissa", a 13-year-old who had experienced child maltreatment for several years when younger and who now appears to be dissociating, you might say, "Clarissa appears to be dissociating not only in school but at home. Teachers remark that during school she frequently seems to be somewhere else, with eyes not appearing to see what is going on in the room. When

put on the spot to answer a question, one teacher reported that she seems somewhat oppositional in that she will refuse to answer and simply stare at the teacher without speaking. Teachers report that she looks very frightened when this occurs, however. At home her mother describes her as loving to daydream, and Clarissa states that this daydreaming make her feel as if she has been transported to the place she is daydreaming about. This is important because dissociation is one of two important ways in which individuals neurophysiologically respond to overwhelming stress (Perry, 2006). That she dissociates across locations suggests this might be an ingrained pattern for her and would therefore be an important treatment focus.

In this example, I correctly identified that the teen was dissociating, and could apply it correctly to her, citing examples in which Clarissa appeared dissociative and going a step further to **suggest** (we do not know for sure) possible implications for her (i.e., this might be an ingrained pattern of responding to overwhelming stress) and for treatment. It is not necessary to talk about the neurobiological process of dissociation per se, as this paper is one in which you are to apply clinically the knowledge you have learned. The knowledge is assumed if you can apply it correctly. Still, if you do state something as fact, make sure to cite it and include it in your list of references.

**Due August 9, 2018**

Each test is worth 20 points x 3 tests 60 points Final paper 40 points

**Final Grade**

The University of Tennessee does not award minus grades at the graduate level. Therefore, the following grading scale will be used for the final grade:

**Points**

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A 92-99	C 70-77
B+ 88-91	D 60-69
B 84-87	F 59 and below
C+ 78-83	

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***\*\*All required readings, videos, and lecture materials will be posted on the course CANVAS site within each appropriate unit. Readings are listed in the syllabus for students who may wish to access reading content prior to session beginning.***



## Unit 1: Genetics and Human Development

### **Optional papers and tutorials:**

Based on your previous knowledge of DNA, genes, chromosomes, protein, and Mendelian genetics, you may wish to go to these sites.

Learn.Genetics (2009). *Tour of the basics. A web-based tutorial.*

<http://learn.genetics.utah.edu/> Six different web-based slide presentations can be watched to review basic premises of genetics.

O'Neil, D. (2008). *Mendel's genetics.* [http://anthro.palomar.edu/mendel/mendel\\_1.htm](http://anthro.palomar.edu/mendel/mendel_1.htm)

### **Required Readings:**

- Champagne, F.A. (2009). Epigenetic influence of social experiences across the lifespan. *Developmental Psychobiology*, 52(4), 299 – 311.
- Champagne, F. A., & Mashoodh, R. (2009). Genes in context: Gene-environment interplay and the origins of individual differences in behavior. *Current Directions in Psychological Science*, 18(3), 127-131.
- Curley, J. P., Jensen, C. L., Mashoodh, R., & Champagne, F. A. (2011). Social influences on neurobiology and behavior: Epigenetic effects during development. *Psychoneuroendocrinology*, 36, 352-371.

## Unit 2: Brain and Behavior

### **Optional Web Sites:**

<https://www.cdc.gov/ncbddd/childdevelopment/early-brain-development.html>

<https://www.koshland-science-museum.org/explore-the-science/interactives/brain-anatomy>

There are many more excellent websites on the brain. You may wish to surf the web to locate some of these.

### **Optional Readings:**

- *If you are not very familiar with attachment theory and its propositions, I recommend reading the following materials. You will be held accountable for basic knowledge related to attachment and the brain.*
- Davies, D. (2010). Chapter 1. Attachment as a context of development. In *Child development: A practitioner's guide* (pp. 7 – 38). New York, NY: Guilford.
- Hart, S. (2011). Chapter 1: The dynamic interaction between caregiver and

infant. *The impact of attachment* (pp. 3 – 37). New York, New York: W. W. Norton.

**Required Readings:**

- Julien, R. M., Advokat, C. D., & Comaty, J. E. (2011). Chapter 3. The neuron, synaptic transmission, and neurotransmitters. *A primer of drug addiction* (pp. 60 – 88). New York: Worth Publishers.
- Heatherton, T. F. (2011). Chapter 19. Building a social brain. In A. Todorox, S. T. Fiske, & D. A. Prentice (Eds.), *Social neuroscience: Toward understanding the underpinnings of the social mind* (pp. 274-283). New York, NY: Oxford University Press.
- Hart, S. (2011). Chapter 2: The impact of dynamic interaction on brain development. *The impact of attachment* (pp. 38-65). New York, New York: W. W. Norton
- Steinberg, L. (2009). Should the science of adolescent brain development inform public policy? *American Psychologist*, 739-750.
- Garrett, B. (2009). Excerpt: Sexual orientation. *Brain & behavior: An introduction to biological psychology* (2<sup>nd</sup> ed., pp. 211 – 219) Los Angeles, CA: Sage.
- Burke, S. N., & Barnes, C. A. (2006). Neural plasticity and the ageing brain. *Neuroscience*, 7, 30-40.

**Unit 3: Stress, Trauma, and Hormones**

**Required Web Sites:** 

<http://learn.genetics.utah.edu/content/begin/cells/cellcom/> (video file)

<http://www.powershow.com/view/2d5d0->

<http://www.ack.vu.nl/htmls/symposia/2003/Oliver Twist/Vincent Felitti.pdf>

**Required Readings:**

- Champagne, F.A. & Curley, J.P. (2005). How social experiences influence the brain. *Current Opinion in Neurobiology* 15, 704–709.
- Gunnar, M. R., & Loman, M. M. (2011). Chapter 4. Early experience and stress regulation in human development. In D. P. Keating (Ed.), *Nature and nurture in early childhood development* (pp. 97-113) Cambridge, NY: Cambridge University Press.
- Carroll, G. (1998). Mundane extreme environmental stress and African American

families: A case for recognizing different realities. *Journal of Comparative Family Studies*, 29(2), 271-284.

- 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.
- Taylor, S. E. (2006). Tend & befriend: Biobehavioral bases of affiliation under stress. *Current Directions in Psychological Science*, 15(6), 273-277.
- Perry, B. D. (2002). Childhood experience and the expression of genetic potential: What childhood neglect tells us about nature and nurture. *Brain and Mind*, 3, 79-100.
- McEwen BS. & Wingfield, J.C. (2003). The concept of allostasis in biology and biomedicine. *Hormones & Behavior*, 43, 2-6, 12-15.
- van der Kolk, B. A. (2003). The neurobiology of childhood trauma and abuse. *Child & Adolescent Psychiatric Clinics of North America*, 12, 293-317.
- McEwen BS. & Wingfield, J.C. (2003). The concept of allostasis in biology and biomedicine. *Hormones & Behavior*, 43, 2-15.
- University of California - Irvine (2010, May 25). Sept. 11 attacks linked to increased male baby miscarriages, even in women with no direct connection to events (abstract). *Science Daily*. Retrieved May 26, 2010, from <http://www.sciencedaily.com/releases/2010/05/100524203304.htm>

### SYLLABUS SUMMARY

Content	Assignments	Due Date
Unit 1: Introduction & genetics	Unit 1 Test	7/16/18
Unit 2: The social brain	Unit 2 Test	7/23/18
Unit 3: Stress, trauma, & hormones	Unit 3 Test	7/30/18
Knowledge application	Final Paper	8/9/18