**PSYC GU4490y –** Psychobiology of Infant Development (seminar)

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**The reading list and weekly syllabus** – subject to revision

All readings are available online through http://courseworks.columbia.edu.

**Course Requirements and Grading**

Your final grade will be based on:

Weekly written assignments 30%

Class participation 30%

Final paper and presentation 40%

(will define rubrics for above in class)

**Weekly Written Assignments**

Readings will be posted on CourseWorks and written assignments based on these readings are due every Wednesday night (via courseworks).

**Final Paper and presentation**

Your final paper will be aresearch proposal in the form of a mini-grant application.

#### Topic title due — 3/23

#### Send me a tentative title for your paper.

#### Presentations on 4/20, 4/27

#### Give a 5-7 minute PowerPoint presentations of paper outline to class. *(Recommended 4-6 slides, covering the four bolded sections in the paper outline)*

#### Paper due – 5/4

12-15 pages, excluding references. Sample outline on CourseWorks.

**January 19 (WPF)**

**Course overview, requirements, and summary of weekly readings\***

**January 26 (WPF)**

**Fetal ontogeny: early brain development**

Reading Assignment:

Moon, C. M., & Fifer, W. P. (2017). Prenatal development. In G. Bremner & A. Slater (Eds.), *An*

*introduction to developmental psychology* (3rd ed., pp. 112–135). Hoboken, NJ: John Wiley & Sons.

**February 2 (WPF)**

**Newborn perceptual and cognitive abilities**

Reading Assignments:

Callaghan, B., & Fifer, W. P. (2017). Perinatal attention, memory and learning during

sleep. *Enfance*, (3), 349-361.

Schaal, B., Saxton, T. K., Loos, H., Soussignan, R., & Durand, K. (2020). Olfaction scaffolds the

developing human from neonate to adolescent and beyond. *Philosophical Transactions of the Royal Society B*, *375*(1800), 20190261.

Chung, W. et al (2022). Newborn screening for neurodevelopmental diseases: Are we there

yet?  *American Journal of Medical Genetics Part C: Seminars in Medical Genetics*. John Wiley & Sons, Ltd, 2022.

**February 9 (WPF)**

**Preterm Birth**

Reading Assignments:

Burtchen, N., Myers, M. M., Lucchini, M., Ordonez Retamar, M., Rodriguez, D., & Fifer, W. P.

(2019). Autonomic signatures of late preterm, early term, and full term neonates during early postnatal life. *Early Human Development*, *137*, 104817.

Cobo, T., Kacerovsky, M., & Jacobsson, B. (2020). Risk factors for spontaneous preterm

delivery. *International Journal of Gynecology & Obstetrics*, *150*(1), 17-23.

Maitre, N. L., Key, A. P., Slaughter, J. C., Yoder, P. J., Neel, M. L., Richard, C., ... & Murray, M. M.

(2020). Neonatal multisensory processing in preterm and term infants predicts sensory reactivity and internalizing tendencies in early childhood. *Brain topography*, *33*(5), 586-599.

**February 16 (ST-R)**

**Biobehavioral Assessments and Interventions in Infancy**

Reading Assignments:

Brito, N. H., Fifer, W. P., Amso, D., Barr, R., Bell, M. A., Calkins, S., ... & Samuelson, L. M. (2019).

Beyond the Bayley: Neurocognitive Assessments of Development During Infancy and Toddlerhood. *Developmental neuropsychology*, *44*(2), 220-247.

Troller-Renfree, S. V., Costanzo, M. A., Duncan, G. J., Magnuson, K., Gennetian, L. A., Yoshikawa,

H., ... & Noble, K. G. (2022). The impact of a poverty reduction intervention on infant brain activity. *Proceedings of the National Academy of Sciences*, *119*(5).

Tabachnick, A. R., Raby, K. L., Goldstein, A., Zajac, L., & Dozier, M. (2019). Effects of an

attachment-based intervention in infancy on children’s autonomic regulation during middle childhood. *Biological psychology*, *143*, 22-31.

**February 23 (WPF)**

**Sudden Infant Death: causes, prediction and prevention**

Reading Assignments:

Horne, R. S. (2019). Sudden infant death syndrome: current perspectives. *Internal Medicine Journal*, *49*(4), 433-438.

Sania, A., Myers, M. M., Pini, N., Lucchini, M., Nugent, J. D., Shuffrey, L. C., Rao, S., Barbosa, J., Angal, J., Elliot, A. J., Odendaal, H. J. & Fifer, W. P. (2022). Prenatal smoking and drinking are associated with altered newborn autonomic functions*. Pediatric Research* (2022):1-11.

Elliott, A. J., Kinney, H. C., Haynes, R. L., Dempers, J. D., Wright, C., Fifer, W. P., ... & Folkerth, R.

D. (2020). Concurrent prenatal drinking and smoking increases risk for SIDS: Safe Passage Study report. *EClinicalMedicine*, 100247.

**March 2**

**Prenatal adverse conditions and infant outcome: Congenital heart disorders**

**Guest Speaker: Dr. Ismee Williams, MD**

Reading Assignments:

Hahn, E., Szwast, A., Cnota, J., Levine, J. C., Fifer, C. G., Jaeggi, E., ... & Williams, I. A. (2016).

Association between fetal growth, cerebral blood flow and neurodevelopmental outcome in univentricular fetuses. *Ultrasound in Obstetrics & Gynecology*, *47*(4), 460-65.

Leon, R. L., Mir, I. N., Herrera, C. L., Sharma, K., Spong, C. Y., Twickler, D. M., & Chalak, L. F.

(2021). Neuroplacentology in congenital heart disease: placental connections to neurodevelopmental outcomes. *Pediatric research*, 1-8.

Rosenberg, K. B.,. & Williams, I. A. (2010). Referral for fetal echocardiography is associated with increased maternal anxiety. *Journal of Psychosomatic Ob & Gyn*, *31*(2), 60-69.

**March 9 (WPF)**

**Fetal environment: effects of maternal exposures during pregnancy.**

Reading Assignments:

Shuffrey, L. C., & Fifer, W. P. (2019). Prenatal Risk Factors and Neurodevelopment. *Reference*

*Module in Neuroscience and Biobehavioral Psychology*.

Shuffrey, L. C., Myers, M. M., Isler, J. R., Lucchini, M., Sania, A., Pini, N., ... & Fifer, W. P. (2020). Association between prenatal exposure to alcohol and tobacco and neonatal brain activity: Results from the safe passage study. *JAMA network open, 3*(5), e204714-e204714.

Monk, C., Webster, R. S., McNeil, R. B., Parker, C. B., Catov, J. M., Greenland, P., … Grobman, W.

A. (2019). Associations of perceived prenatal stress and adverse pregnancy outcomes with perceived stress years after delivery. *Archives Of Women’s Mental Health*.

**March 16**

**SPRING BREAK**

**March 23 (MF)**

**The maternal fetal placental unit and child outcomes**

Reading Assignments:

Firestein, M. R., Kliman, H. J., Sania, A., Brink, L. T., Holzer, P. H., Hofmann, K. M., ... & Fifer, W.

P. Trophoblast inclusions and adverse birth outcomes.

Manson, J.E. (2008). Prenatal exposure to sex steroid hormones and behavioral/cognitive outcomes. *Metabolism*, *57;2*.

Firestein, M. R., Romeo, R. D., Winstead, H., Goldman, D. A., Grobman, W. A., Haas, D., ... &

Champagne, F. A. (2022). Elevated prenatal maternal sex hormones, but not placental aromatase, are associated with child neurodevelopment. *Hormones and Behavior*, *140*, 105125.

**March 30 (MF, WPF)**

**Maternal, Fetal, and Infant Sleep**

Reading Assignments:

Barbeau, D. Y., & Weiss, M. D. (2017). Sleep disturbances in newborns. *Children*, 4(10), 90.

Mindell, J. A., Sadeh, A., Kwon, R., & Goh, D. Y. (2015). Relationship between child and maternal

sleep: a developmental and cross-cultural comparison. *Journal of pediatric psychology*, *40*(7), 689-696.

Tikotzky, L. (2016). Postpartum maternal sleep, maternal depressive symptoms and self-

perceived mother–infant emotional relationship. *Behavioral Sleep Medicine*, *14*(1), 5-22

**April 6 (MF, WPF)**

**Covid Exposures During Pregnancy and Social Disparities in Outcomes**

Reading Assignments:

Shuffrey, L.C., Firestein, M. R., et al. (2022). Association of birth during the COVID-19 pandemic

with neurodevelopmental status at 6 months in infants with and without in utero exposure to maternal SARS-CoV-2 infection*. JAMA Pediatrics.* Advance online publication. doi:10.1001/jamapediatrics.2021.5563

Firestein, M. R., Dumitriu, D., Marsh, R., & Monk, C. (2022). Maternal Mental Health and Infant Development During the COVID-19 Pandemic. *JAMA psychiatry*.

Tesson, S., Swinsburg, D., & Kasparian, N. A. (2021). Maintaining momentum in infant mental

health research during COVID-19: Adapting observational assessments. *Journal of pediatric psychology*, *46*(3), 254-263.

**April 13 (MF, WPF)**

**Prenatal Risk Factors for Autism and Early Infant Markers**

Reading Assignments:

Xiang AH, Wang X, Martinez MP, Walthall JC, Curry ES, Page K, Buchanan TA, Coleman KJ, Getahun D. (2017). Association of maternal diabetes with autism in offspring. JAMA. 313(14).

Maher, G.M., O'Keeffe, G.W., Dalman, C., Kearney, P.M., McCarthy, F.P., Kenny, L.C., & Khashan, A.S. (2020). Association between preeclampsia and autism spectrum disorder: a population-based study. J Child Psychol Psychiatr, 61.

Alemany S., Avella-García C., … Sunyer J. (2021) Prenatal and postnatal exposure to acetaminophen in relation to autism spectrum and attention-deficit and hyperactivity symptoms in childhood: Meta-analysis in six European population-based cohorts. Eur J Epidemiol. 36(10)

McDonald N.M., Jeste S.S. (2021) Beyond Baby Siblings-Expanding the Definition of "High-Risk Infants" in Autism Research. *Curr Psychiatry Rep*. 23(6):34.

**April 20 and April 27 Last Day of Class (MF, WPF)**

**Student 6-minute presentations and discussions**

**May 4**

**Final Papers Due**