

**PSYC 461/592 Executive Function Development**  
**Tues/Thurs 9:00-10:15am**  
**Innovation Hall 133**

Instructor: Dr. Sabine Doebel  
 Email: [sdoebel@gmu.edu](mailto:sdoebel@gmu.edu)  
 Office: 3074 David King Hall  
 Office Hours: by appointment

**Course Overview**      This seminar introduces and explores the topic of executive function, with an emphasis on how it develops.

*Executive function* refers to our capacity to regulate our thoughts and behaviors in the service of goals, often in the face of competing habits, desires, and response tendencies. Research on executive function goes back many decades, but has flourished in recent years, particularly in developmental psychology. This is in part because it is linked to skills and outcomes in childhood and later in life, and because it is believed that it can be improved through interventions.

In this class you will learn more about what executive function is and how it develops, by: 1) reading, reflection on, and discussing empirical articles; and by writing a research paper on a topic related to executive function that you are personally interested in.

**Objectives**      By the end of this course, you will:

- Understand why researchers, parents, and educators are interested in executive function
- Be able to critically evaluate claims about executive function and its development
- Understand key theories, findings, and debates in the executive function literature
- Gain skills in reading and critically evaluating journal articles
- Gain skills in communicating orally and in writing

**Readings**      Empirical articles shared via Blackboard.

**Course Website**      We will use Blackboard to share class readings, assignment instructions, announcements, and more.

**Attendance**      You are expected to attend this class regularly. If you cannot attend a class, you do not need to inform me; however, missing 3 or more classes could result in failing the class.

**Participation**      This is a seminar class, so it is expected that everyone will come to class having read the assigned article(s) and prepared to participate. If you have anxiety about speaking, please feel free to talk with me. I will do whatever I can to support the participation of all students.

Official Communications via GMU E-mail	Mason uses electronic mail to provide official information to students. Examples include communications from course instructors, notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it regularly.
Class Cancellation Policy	If I need to cancel class due to an illness or personal emergency, I will send an email to the class as soon as possible. If the university shuts down for any reason, I will send an email to the class confirming whether or not the class will be held. If class is cancelled, any revisions to the syllabus or changes to class assignments will be announced in class and over email.
Students with Disabilities	If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Services (DRS) at 703-993-2474.
Academic Integrity	Please familiarize yourself with the University Honor Code found at the following link: <a href="http://oai.gmu.edu/the-mason-honor-code-2/">http://oai.gmu.edu/the-mason-honor-code-2/</a> .
Inclusivity	Everyone is welcome in my class! I value individuals and their differences including but not limited to race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion, age, and disability. Racism or discrimination of any kind will not be tolerated.
Class Schedule	The course schedule is provided below.
Syllabus	I may make minor changes to the syllabus during the semester. I will notify you of any changes in advance.
Adding and Dropping Classes	Check the academic calendar here: <a href="https://registrar.gmu.edu/calendars/fall_2020/">https://registrar.gmu.edu/calendars/fall_2020/</a>
Technology policy	You may use your laptop if you need to refer back to an article we are discussing, but that is it. Please carefully consider the effect your technology use may be having on your learning, your classmates' learning, and my teaching.
Notice of mandatory reporting of sexual assault, interpersonal violence, and stalking.	As a faculty member, I am a designated a "Responsible Employee," and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason's Title IX Coordinator per University Policy 1412. If you wish to speak with someone confidentially, please contact one of Mason's confidential resources, such as Student Support and Advocacy Center (703-993-2380). You may seek assistance from Mason's Title IX Coordinator by calling 703-993-873

**Grading**

Grades will be calculated as follows:  $> 93\% = A$ ,  $90 - 92 = A-$ ,  $87 - 89 = B+$ ,  $83 - 86 = B$ ,  $80 - 82 = B-$ ,  $70 - 79 = C-$ ,  $60 - 69 = D$ ,  $< 60 = F$

**Grade components****Participation (10%)**

Participation includes coming to class (on time), showing evidence that you have spent time reading and thinking about the assigned articles, being engaged during class, and contributing to the discussion in thoughtful ways. I will track participation during each class.

**Reflection before class (10 x 4%)**

Please submitted your half-page reflection the day or evening before class. This should be a question about something you didn't understand in the reading(s). You should submit 10 reflections throughout the semester, one per week. These can involve: questions raised by the readings; things you did not understand and would like clarification on, attempts to deepen your understanding of the material (e.g., by summarizing main points for yourself or working through some thoughts you had in response to the readings or discussion); and more. Reflections should be submitted online via Blackboard.

**Three possible topics for research paper (2% of grade)**

You will submit, via Blackboard, 3 possible topics for your research paper and I will give you brief feedback (also in Blackboard) before you finalize your idea. Your topic must relate to executive function and development. You can propose a research study or you can conduct a focused literature review. Please be as specific yet as succinct as possible when describing each topic (ideally no more than 1 sentence about each topic). For example: "An experimental study manipulating false-belief understanding and testing effects on executive function."

**Presentation (15% of grade)**

You will give a brief presentation about your plans for your research paper, which will give you an opportunity to receive some feedback on your ideas.

**Final research paper (33%)**

Papers will be due at the end of the semester and should approximately 8-10 double-spaced pages. Research proposals should include a brief literature review and rationale for the proposed study, detailed method section, hypothetical results, and conclusion. Literature reviews should address an interesting, novel question related to executive function and development. There should be reason to expect that there is a sizeable literature that can be reviewed to answer the question. Additional detailed instructions will be provided to guide your writing of the final paper.

**8/23: Introductions and syllabus review**

**8/25: Executive function as a neuropsychological construct**

Diamond, A., & Taylor, C. (1996). Development of an aspect of executive control: Development of the abilities to remember what I said and to “Do as I say, not as I do”. *Developmental Psychobiology*, 29(4), 315-334.

**8/30: Why is child executive function so widely studied today?**

Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development*, 78(2), 647-663.

Further reading:

Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science*, 333(6045), 959-964.

**9/1: EF in childhood: developmental theories**

Zelazo, P. D., Müller, U., Frye, D., Marcovitch, S., Argitis, G., Boseovski, J., ... & Carlson, S. M. (2003). The development of executive function in early childhood. *Monographs of the Society for Research in Child Development*, i-151. (Read first 10 pages only!)

**9/6: EF and academic achievement**

Spiegel, J. A., Goodrich, J. M., Morris, B. M., Osborne, C. M., & Lonigan, C. J. (2021). Relations between executive functions and academic outcomes in elementary school children: A meta-analysis. *Psychological Bulletin*, 147(4), 329.

**9/8: Self-control**

Moffitt, Terrie E., et al. "A gradient of childhood self-control predicts health, wealth, and public safety." *Proceedings of the national Academy of Sciences* 108.7 (2011): 2693-2698.

**9/13: Does EF support important outcomes beyond academics?**

Stucke, N.J., Doebel, S. Does Preschool Executive Function Predict Concurrent and Later Social, Health and Behavioral Outcomes? A Meta-Analysis. Under review.

**9/15: Searching for hidden objects and the A-not-B error**

Lipina, S. J., Martelli, M. I., Vuelta, B., & Colombo, J. A. (2005). Performance on the A-not-B task of Argentinean infants from unsatisfied and satisfied basic needs homes. *Revista Interamericana de Psicología/Interamerican Journal of Psychology*, 39(1), 49-60.

Further reading:

Wellman, H. M., Cross, D., Bartsch, K., & Harris, P. L. (1986). Infant search and object permanence: A meta-analysis of the A-not-B error. *Monographs of the society for Research in Child Development*, i-67.

### **9/20: SES and executive function: The language hypothesis**

Romeo, R. R., Flournoy, J. C., McLaughlin, K. A., & Lengua, L. J. (2022). Language development as a mechanism linking socioeconomic status to executive functioning development in preschool. *Developmental Science*, e13227.

### **9/22: SES and executive function: The household chaos hypothesis**

Andrews, K., Atkinson, L., Harris, M., & Gonzalez, A. (2021). Examining the effects of household chaos on child executive functions: A meta-analysis. *Psychological Bulletin*, 147(1), 16.

### **9/27: SES and executive function: The cognitive enrichment hypothesis**

Rosen, M. L., Hagen, M. P., Lurie, L. A., Miles, Z. E., Sheridan, M. A., Meltzoff, A. N., & McLaughlin, K. A. (2020). Cognitive stimulation as a mechanism linking socioeconomic status with executive function: A longitudinal investigation. *Child Development*, 91(4), e762-e779.

Deer, L., Hastings, P., & Hostinar, C. (2020). Boosting Executive Function May Help Close Income-Based Achievement Gap. *Psychology*, 68, 413-434.

### **9/29: Can EF be trained?**

Takacs, Z. K., & Kassai, R. (2019). The efficacy of different interventions to foster children's executive function skills: A series of meta-analyses. *Psychological Bulletin*, 145(7), 653.

Further reading:

Melby-Lervåg, M., & Hulme, C. (2013). Is working memory training effective? A meta-analytic review. *Developmental Psychology*, 49(2), 270.

### **10/4: Curricula targeting EF**

Nesbitt, K. T., & Farran, D. C. (2021). Effects of prekindergarten curricula: Tools of the Mind as a case study. *Monographs of the Society for Research in Child Development*, 86(1), 7-119.

### **10/6: Working memory and children's activities at home and school**

Finch, J. E. (2019). Do schools promote executive functions? Differential working memory growth across school-year and summer months. *AERA Open*, 5(2), 2332858419848443.

Further reading:

Lillard, A., & Else-Quest, N. (2006). Evaluating Montessori education. *Science*, 313(5795), 1893-1894.

**10/11: No class**

**10/13: Delay of gratification**

Watts, T. W., Duncan, G. J., & Quan, H. (2018). Revisiting the marshmallow test: A conceptual replication investigating links between early delay of gratification and later outcomes. *Psychological Science*, 29(7), 1159-1177.

**10/18: DoG and culture**

Lamm, B., Keller, H., Teiser, J., Gudi, H., Yovsi, R. D., Freitag, C., ... & Lohaus, A. (2018). Waiting for the second treat: Developing culture-specific modes of self-regulation. *Child Development*, 89(3), e261-e277.

Further reading:

Doebel, S., & Munakata, Y. (2018). Group influences on engaging self-control: Children delay gratification and value it more when their in-group delays and their out-group doesn't. *Psychological Science*, 29(5), 738-748.

**10/20: DoG and culture (part 2)**

Yanaoka, K., Michaelson, L. E., Guild, R. M., Dostart, G., Yonehiro, J., Saito, S., & Munakata, Y. (2022). Cultures crossing: the power of habit in delaying gratification. *Psychological Science*, 33(7), 1172-1181.

Further reading:

Ma, F., Zeng, D., Xu, F., Compton, B. J., & Heyman, G. D. (2020). Delay of gratification as reputation management. *Psychological Science*, 31(9), 1174-1182.

**10/25: EF and less-structured time**

Barker, J. E., Semenov, A. D., Michaelson, L., Provan, L. S., Snyder, H. R., & Munakata, Y. (2014). Less-structured time in children's daily lives predicts self-directed executive functioning. *Frontiers in Psychology*, 593. Full text link: <https://www.frontiersin.org/articles/10.3389/fpsyg.2014.00593/full>

Further reading:

Stucke, N. J., Stoet, G., & Doebel, S. (2022). What are the kids doing? Exploring young children's activities at home and relations with externally cued executive function and child temperament. *Developmental Science*, e13226.

**10/27: EF and parenting**

Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development*, 81(1), 326-339.

**11/1: Global perspectives on EF**

Obradović, J., & Willoughby, M. T. (2019). Studying executive function skills in young children in low-and middle-income countries: Progress and directions. *Child Development Perspectives*, 13(4), 227-234.

**11/3: Global perspectives on EF**

Gaskins & Alcala (reading TBD)

**11/8: EF, race and ethnicity**

Miller-Cotto, D., Smith, L. V., Wang, A. H., & Ribner, A. D. (2022). Changing the conversation: A culturally responsive perspective on executive functions, minoritized children and their families. *Infant and Child Development*, 31(1), e2286.

**11/10: EF and ADHD**

Biederman, J., Petty, C. R., Fried, R., Doyle, A. E., Spencer, T., Seidman, L. J., ... & Faraone, S. V. (2007). Stability of executive function deficits into young adult years: a prospective longitudinal follow-up study of grown-up males with ADHD. *Acta Psychiatrica Scandinavica*, 116(2), 129-136.

Barkley, R. A. (2019). Neuropsychological testing is not useful in the diagnosis of ADHD: Stop it (or prove it)!. *The ADHD Report*, 27(2), 1-8.

**11/15: EF and private speech**

Winsler, A., De Leon, J. R., Wallace, B. A., Carlton, M. P., & Willson-Quayle, A. (2003). Private speech in preschool children: Developmental stability and change, across-task consistency, and relations with classroom behaviour. *Journal of Child Language*, 30(3), 583-608.

Further reading:

Winsler, A., & Naglieri, J. (2003). Overt and covert verbal problem-solving strategies: Developmental trends in use, awareness, and relations with task performance in children aged 5 to 17. *Child Development*, 74(3), 659-678.

**11/17 – 11/22: presentations**

**11/24: no class (Thanksgiving break)**

**11/29: EF and pretend play**

White, R. E., Prager, E. O., Schaefer, C., Kross, E., Duckworth, A. L., & Carlson, S. M. (2017). The “Batman Effect”: Improving perseverance in young children. *Child Development*, 88(5), 1563-1571.

Further reading:

Thibodeau-Nielsen, R. B., Gilpin, A. T., Nancarrow, A. F., Pierucci, J. M., & Brown, M. M. (2020). Fantastical pretense's effects on executive function in a diverse sample of preschoolers. *Journal of Applied Developmental Psychology*, 68, 101137.

**12/1: TBD**