UWEC Psyc 372/572: Individual Differences and Behavior Genetics
Fall 2024

**Class Info:** T/Th 2:00-3:15, HHH 229
**Instructor:** Dr. April Bleske-Rechek
**Office:** HHH 255 (you can also find me in my lab-HHH 220A)
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**Drop-In Hours in HHH 255:** TBA and by appointment

*Readings*
I will post all readings on Canvas.

*Course Objectives*
This course is in the Biological Domain of the psychology major/minor. The course is designed to introduce you to the structure of various individual differences attributes (cognitive abilities, personality traits, vocational interests and values, psychological well-being, mating strategies, sexual orientation, and psychopathology), and the behavioral genetic research devoted to unraveling their causal structure. Behavioral genetic research designs come in two main flavors: quantitative research designs such as twin and adoptions studies, and molecular genetic research designs such as genome-wide association studies. These studies are unique in their capacity to identify specific genetic elements that influence behavior and to separate out proportion of variance in behavior accounted for by genetic influences, shared environmental influences, and nonshared environmental influences. Upon completion of this course, my broad intent is for you to be prepared to:

- Explain why reliable and valid measurement tools are key to understanding psychological constructs;
- Describe various quantitative (twin, adoption, and family) research designs;
- Describe criticisms and strengths of quantitative research designs;
- Describe exemplary results of behavioral genetics research, such as findings on how genetic and environmental influences interact to predict behavioral outcomes;
- Discuss rationally the personal, societal, educational, and clinical implications of behavioral genetic research findings.

*Goals in Psychology*
The Psychology Department has adopted the APA Goals of the undergraduate major/minor in psychology, and we will attempt to pursue some of those. For example, you will be expected to…

- Describe at least three major dimensions of individual differences and how they are measured by differential psychologists (Goal 1: Knowledge Base of Psychology);
- Describe how differential psychologists document the reliability and validity of their measurement tools; and explain what is meant by "our understanding of a construct is only as good as its measurement." (Goal 1: Knowledge Base of Psychology; Goal 2: Scientific Inquiry and Critical Thinking);
- Define and give examples of shared environmental influences, nonshared environmental influences, and genetic influences (Goal 1: Knowledge Base of Psychology);
- Describe behavioral geneticists' findings on how nature (genes) and nurture (environment) *correlate* and *interact* (Goal 1: Knowledge Base of Psychology; Goal 2: Scientific Inquiry and Critical Thinking);
- Clearly distinguish between *influence* and *determine* (Goal 1: Knowledge Base of Psychology; Goal 2: Scientific Inquiry and Critical Thinking);
- Describe the logic of various twin, adoption, and other genetically informed family designs, as well as their unique strengths and weaknesses (Goal 2: Scientific Inquiry and Critical Thinking);
- Recognize sound logic, and distinguish between *assumptions* and *evidence*, especially in the context of causal claims, probabilistic trends, the socialization fallacy, and cognitive abilities (Goal 2: Scientific Inquiry and Critical Thinking);
- Identify applications of behavioral genetic findings for confronting major societal issues like substance abuse, psychopathology, obesity and physical inactivity, marriage and divorce, variation (inequities) in educational outcomes and the development of intellectual capital, and gender differences in STEM (Goal 2: Scientific Inquiry and Critical Thinking);

- Recognize and describe the many (infinite) dimensions along which individuals and groups differ (including cognitive abilities, personality traits, values, vocational interests, political views, psychopathology, etc.), and contemplate the danger of attempts to eliminate or disrespect diversity (Goal 3: Ethical and Social Responsibility in a Diverse World)
- Recognize and verbally address the ethical dangers of misunderstandings, or misuse, of behavioral genetic findings (Goal 3: Ethical and Social Responsibility in a Diverse World)

*Course Requirements*

- In this class, ***we will have daily (every Tuesday/Thursday) reading guides and weekly quizzes (Friday). You will submit your reading guide ONLINE by the beginning of class each day, and you will take the quizzes ONLINE.*** This course is listed as a standard face-to-face course, so all classes will be held in person unless university policy changes. This is good, because there is a lot of nuance when it comes to talking about things like "intelligence" and "genetics" in the same sentence! The upshot is that in-person attendance is expected of you, and for three primary reasons: in-person attendance will allow you to (1) engage more fully with the course and feel less distracted, (2) feel more connected to and supported by your fellow peers, and (3) feel more connected to and supported by me.
- I hope you do not have to miss any classes because missing class may disrupt your learning. Your readings and what we talk about in class will not fully overlap. I use class time to expand upon the readings and to introduce new material. We also will use some class time to engage in focused discussion to clarify concepts. *All material discussed in class may appear on the quizzes, even if not in the readings. All required reading material may appear on the quizzes, even if not discussed in class.*
- If you miss class, I will not give you my notes or recreate the lecture or class session for you. However, I do recognize that life happens. You might get sick, and other things could happen, too. I appreciate but do not require notice when you miss class, regardless of the reason. I am easy to get ahold of over email or my cell phone, and you can stop by my office essentially any time -- during or outside of drop-in hours. I also encourage you to develop good relationships with your peers in class. You can help one another by lending each other notes if one of you must be absent, and by studying together. (More on this later.)

*Grades*

You will earn points through your completion of 26 course reading guides (~130 points), 14 weekly check-ins (~500 points), and a comprehensive review and reflection (~80 points). Your attendance, attention, and participation in class will facilitate your learning and successful completion of these course requirements.

I expect you to complete the readings, and the reading guides corresponding to them, *prior* to class. **The readings and reading guides are meant to prepare you for the material to be discussed in lecture and for the weekly quizzes, so you need to submit your reading guide before class starts.**

Because there are many reading guides and they are meant to HELP you as you read, I will not be grading the reading guides with a fine-tooth comb. Instead, I will check them over and score you by the following rules:

- 5 points: You turned submitted the reading guide on time *and* it is obvious that you tried hard through the entire assignment.
- 2.5 points: You submitted the reading guide on time, but your responses to open-ended questions are vague, the amount of effort displayed is waning as your assignment goes on, or you have answered even the most basic questions incorrectly [which indicates guessing].
- 0 points: You did not submit it, or you submitted it late. I will post the keys for the reading guides right after the deadline for submission, so if you submit late, I cannot give you any credit. *At the end of the semester, if you have just one zero (a miss is bound to happen!), I will turn that value into a blank ("missing" value) so that it does not count against you. A second zero (or more) will count against your total.* That said, 5 points is low stakes.

NOTE! The reading guides will proceed much more smoothly for you if you read the relevant material before attempting them, and then go into the lecture prepared to learn more. There will generally be some overlap between the readings and the lecture material, but the readings are meant to be just a teaser of all that is relevant to the topic at hand.

We will have a check-in quiz each week, although during week 1 this is really not a quiz but rather a reading guide turned in online. Each quiz will cover content from the lectures as well as the readings and reading guides. Each quiz will probably include a combination of closed-ended (e.g., multiple choice) and open-ended (short essay) questions. I also plan to include material from prior weeks on as many quizzes as possible, so that you have interleaved retrieval practice with important ideas from the class. Each quiz will be open for approximately 30 hours (although you will have a time limit once you begin each quiz), so I do not expect you to have any missing quiz scores. However, if you do miss ONE quiz, I will score that as missing (not a zero, but not added points, either). Any additional missed quizzes will be scored a 0.

Grades will be calculated as a proportion of points earned out of total possible, and will be assigned as follows:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | B+ | 87.00-89.99% | C+ | 77.00-79.99% | D+ | 67.00-69.99% | | |
| A | 93.00-100% | B | 83.00-86.99% | C | 73.00-76.99% | D | 63.00-66.99% | | |
| A- | 90.00-92.99% | B- | 80.00-82.99% | C- | 70.00-72.99% | D- | 60.00-62.99% | F | <60% |

Please note:

- I hold high expectations for all students;
- The concepts in this class are difficult at times and hence so are the readings and reading guide questions;
- Performance, and not solely effort, is what determines your final grade. Consistent effort, however, will undoubtedly enhance your performance.

*Warnings*

- EVERY time you upload a file, please be extra careful to ensure it is the one you want (i.e., that it is the document with your responses included!). I appreciate direct uploads of Word docs; I will not accept links to OneDrive files. If you upload the wrong file, a second submission is not allowed because I open the key right after the deadline. And when I allow multiple submissions some people cheat.
- Second, please do not ask for time extensions. I have to keep up with you and all the other courses I am teaching, and it is very frustrating to score things after the fact when I need to be scoring the *incoming* assignments. Your reading guides are low stakes so that if you don't get one in, then that's that and you only lose a few points. You get one "free pass" given that many people miss one or two at some point along the way.

*Other policies*

(1) The last day to drop a course with no record is September 17. The last day to withdraw with a grade of W is November 12.

(2) UWEC policy combined with provisions of the Family Educational Rights and Privacy Act (FERPA) indicates that you have a right to see your records and that I cannot release any information about you to a third party without written permission from you that clearly spells out what type of information may be released. For more information, please see: https://www.uwec.edu/tuition-financial-aid/parent-family-information/ferpa-privacy-policy/.

(3) If you have a documented disability and are in need of special accommodations, please notify the Office for Services for Students with Disabilities as soon as possible so that we can meet your needs: https://www.uwec.edu/equity-diversity-inclusion/edi-services-programs/services-for-students-with-disabilities/.

(4) I expect academic honesty. Sample violations of integrity include (a) using student work, papers, or ideas from previous semesters, unless approved by me; (b) asking for or giving information about the content of my quizzes (e.g., studying from an unauthorized file); (c) representing work done by someone else as your own (i.e., plagiarism). If you are concerned that an activity you or someone else is considering might fall into the dishonest category, ask me about it. I consider academic misconduct in this course as a serious offense, and I will pursue the strongest possible academic penalties for such behavior. The disciplinary procedures and penalties for academic misconduct are described on the UW-Eau Claire Dean of Students web site: https://www.uwec.edu/kb/article/blugold-student-conduct-code/.

Relatedly, I do not consent to notes or materials from my class uploaded to the internet, including commercial note-selling websites such as StudySoup. You do not have the right to provide your notes or assignments to anyone else or to make any commercial use of them without express prior permission from me. Unless you are a qualified student with a disability, you cannot record or pass along my lectures or materials in any form. Inappropriate use of notes may be in violation of the Blugold Conduct Code and sanctions will be pursued accordingly.

(5) Everyone handles illness and contagion differently. In general, I suggest you do not come to class if you are too ill to learn and have an illness that is serious and that you know is contagious. In such circumstances, please remember that there is only one instructor and many students. I cannot re-create class for you, so please do the following:
Reach out to friends you make in the course. When asked nicely, students are almost always willing to turn in a completed reading guide for someone else who can't get to class (just so the other person doesn't make a habit of it), take notes for one another, grab an extra handout, catch each other up on any key ideas or announcements, etc. In addition:

- ✓ Remember that many of your class materials (lecture slide outlines and readings, as well as reading guide keys) are available on Canvas.
- ✓ If you have an excused absence, you will be expected to complete anything missing due to the absence once you recover (i.e., turn them in, but late).
- ✓ Send an email to me each class day you miss to alert me of your situation.

(6) Other absences: As a general rule, make-ups for missed in-class activities, quizzes, final assignment, etc. will be provided only when due to an authorized absence or emergency. It is your responsibility to inform me of such situations and to provide appropriate documentation if needed. Please consult with me regarding the nature of the make-up work and due dates.

(7) Overall, I expect you to be a good citizen. This includes participating actively in class but not dominating it, as well as having an overall positive attitude toward learning, no matter how emotionally and intellectually challenging life can be.

(8) For Graduate Students: If you are enrolled in this student as a graduate student, I will give you additional questions on each quiz that demand deeper analysis of the material. At the end of the semester, you will also complete a brief annotated bibliography and study proposal on a focused topic of interest to you. We will discuss these requirements in one-on-one meetings as the semester progresses.

Below is a table to show you reasons for missing class that are considered unexcused and those that are considered excused by the university. If you anticipate needing to miss more than one week (more than two days) of class due to illness, I encourage you to reach out to the Dean of Students Office so that they can formally help you get the support that you need. Excess absences can make passing classes difficult, so one of the roles of the Dean of Students is to work with you to develop an appropriate plan that can be applied across all your courses.

| Reason for missing class | This is considered an unexcused absence* | This is considered an excused absence |
|---|---|---|
| Email from me telling you that class is optional or cancelled | | X |
| Class field trip with written notice from instructor (e.g., Marching Band trip, trip to Stanley Prison) | | X |
| Varsity or Club sporting event with written notice from coach or athletic director | | X |
| Conference attendance or presentation, with written notice from faculty lead (this includes CERCA, NCUR, etc.) | | X |
| UWEC organization event (such as Forensics competition, mock trial, etc.) with written notice from leader | | X |
| University event with attendance required (e.g., meeting with the Chancellor, RA duty) | | X |
| Court-required attendance (e.g., jury duty, court appearance) | | X |
| Graduate school interview or job interview | | X |
| Going to a medical/therapy appt. or ER/urgent care and having documentation from a healthcare professional | | X |
| Being sick (flu, cold, virus, pink eye etc.) and having documentation from a healthcare professional | | X |
| Going to a medical/therapy appt. or ER/urgent care and not having documentation from a healthcare professional | X | |
| Being sick (flu, cold, virus, pink eye etc.) and not having documentation from a healthcare professional | X | |
| Taking a friend/partner to the ER, doc, airport, etc. | X | |
| Taking your pet to the vet | X | |
| Family event (funeral, parental or sibling care, wedding, send-off, sibling's graduation, etc.) | X | |
| Sleeping through your alarm clock | X | |
| Getting stuck at home because of bad weather | X | |
| Car malfunction, car accident, etc. | X | |
| Getting scheduled at work despite asking for the time off | X | |
| Vacation, planned or unplanned | X | |
| Taking a mental health day | X | |
| Can't find parking | X | |

**** These tend to be "one-off" events, and each student may face just one or two over the semester, if any. With class reading guides as many in number and low stakes, missing is undesirable but each miss has only a very small consequence.***

*A Note on Inclusivity and Language*

In this course, we discuss dimensions along which individuals differ, and I take respect for all individual differences very seriously. That is, you are welcome in my classroom no matter what: whatever your ancestry and racial identity; whatever your sex, gender identity, and gender expression; whatever your sexual orientation; whether you are poor or rich, shy or gregarious, tall or short, single or married, parent or non-parent, smoker or non-smoker, student-athlete or exercise-averse, veteran/military serviceperson or civilian, native English speaker or not, old or young, conservative or libertarian or liberal or woke, born-again Christian or atheist, pro-Israel or pro-Palestine, mentally healthy or unhealthy, Vikings fan or Packers fan, ETCETERA *ad infinitum*! I trust that we will respect one another and give to each other what we all want for ourselves: freedom of thought and viewpoint, freedom of speech, and freedom to associate with whom we please.

For many of the dimensions we cover in this course, there are also average *group* differences. For example, we will discuss *sex* differences on many occasions. As a scientist trained in evolutionary theory, I will use words in class that coincide with the following definitions (see also Geary, 2020 *Male, Female*; Kimura, 1999 *Sex and Cognition*; Soh, 2020 *The End of Gender*):

- *Biological Sex*: male or female; defined by gametes, which are mature reproductive cells. There are two types: sperm (male) and eggs/ova (female). There is no intermediate type; in many species and in all mammals, including humans, and for at least 1.2 billion years, these are the two types of cells required for sexual reproduction and the conception of a new organism. In humans, a single egg (female) is 200,000 times bigger than a single sperm (male). An individual's biological sex corresponds to one of two distinct types of evolved reproductive anatomy (i.e. ovaries or testes) that develop for the production of sperm or ova, regardless of their past, present, or future functionality. In humans, including transgender and non-binary individuals, this reproductive anatomy is unambiguously male or female over 99.98 percent of the time (explained in Sax, 2002: https://pubmed.ncbi.nlm.nih.gov/12476264/). Note: there are a variety of *intersex* conditions by which, due to genetic abnormality or atypical hormone exposure, an individual possesses reproductive or sexual anatomy that is atypical given their chromosomal combination; for example, an individual may have XX chromosomal makeup [i.e., generally ends up an egg-producer (female)], but due to abnormal levels of testosterone exposure in utero the individual may develop ambiguous genitalia; importantly, that testosterone exposure influences that individual's psychological development, as well. Intersex individuals are either (a) infertile or (b) produce either sperm or ova but not both. The bottom line is that for intersex individuals, gametes are not clearly aligned with what is observable [anatomy] or felt [psychology]. If you want to watch a video on **sex** versus the **processes of sex determination**, watch this recent talk by evolutionary biologist Colin Wright: https://www.youtube.com/watch?v=-4WV9xv62f4.
- *Gender Identity*: how we feel in relation to our biological sex. In most cases, *but not all*, males identify as boys/men and females identify as girls/women. In 2014, 6 in 1,000 (.6%) American adults identified as transgender (Arboleda et al., 2014); that number has changed very quickly over the past decade. In 2022, 3% of 18-24-year olds identified as transgender (https://pewrsr.ch/3Qi2Ejd).
- *Gender Expression*: Neither biological sex nor gender identity imposes requirements on gender expression, that is, the external manifestation of our gender identity, or how we express our gender, such as through clothing choices, activity choices, toy preferences, etc. For example, I am a female, I identify as a woman, and I have for my entire life been a bit of a tomboy – expressing myself in a more "masculine" style than "feminine" style.

Given these definitions and terms, here is how I will try to use them:

- As noted, the majority of individuals self-identify as either boy or girl, man or woman. Thus, when I discuss research on *adults* who have self-identified their biological sex or gender identity, I will refer to comparisons of "men" and "women." In scientific studies that we will discuss, there were probably individuals who would have reported an alternative gender identity if they had been given the response option, or who did report an alternative gender identity, but the subsamples would not have been large enough to be included in the analyses.
- If I discuss research on sex differences in *non-human animals*, I will use the terms "males" and "females."
- Likewise, if I am discussing research on *people of varying ages*, I will use a catch-all term of "males" and "females" rather than list out all the age-specific terms (for example, "boys" and "girls" and "male-identifying teens" and "female-identifying teens" and "male elderly" and "female elderly," etc.).

IDBG Fall 2024 Schedule of Events (see course site on Canvas for more)

| Week | Topic | Reading Guide<br>(Submit before 2:00 Arrival) | Weekly Retrieval<br>(Friday) |
|---|---|---|---|
| | | | |
| Week 1<br>(9/5) | | | "Quiz" 1<br>Harris, 1998 (17p)<br>Anastasi, 1988 (20p) |
| | Intro to behavior genetics | Syllabus<br>Introduction to the course | |
| Week 2<br>(9/10, 9/12) | Testing & Measurement I | -Reading Guide 1<br>Green, 1978 (6 p) | Quiz 2 |
| | Testing & Measurement II | -Reading Guide 2<br>Kuncel TEDx Talk (15 min.)<br>Kuncel & Hezlett, 2010 (6p)<br>Bleske-Rechek & Robinson, 2023 (6p) | |
| Week 3<br>(9/17, 9/19) | Separating nature and nurture: Family designs I | -Reading Guide 3<br>Plomin et al., Ch. 6 (13p) | Quiz 3 |
| | Separating nature and nurture: Family designs II | -Reading Guide 4<br>Plomin et al., Ch. 7 (19p) | |
| Week 4<br>(9/24, 9/26) | Discordant twin designs; Genes and environments | | Quiz 4 |
| | G-E correlations and G-E interactions | -Reading Guide 5<br>Plomin et al., Ch. 8 (23p) | |
| Week 5<br>(10/1, 10/3) | Gene hunting and the four laws of BG | -Reading Guide 6<br>Plomin *Blueprint* Ch. 10 (11p)<br>Plomin *Blueprint* Ch. 11 (14p)<br>Plomin *Blueprint* Ch. 12 (14p) | Quiz 5 |
| | The structure and measurement of cognitive abilities | -Reading Guide 7<br>Deary, 2001, Ch. 1 (16p)<br>Koenig et al., 2008 (7p) | |
| Week 6<br>(10/8, 10/10) | Causes of individual differences in general cognitive ability | -Reading Guide 8<br>Plomin et al., Ch. 12 (24p) | Quiz 6 |
| | Implications: the nomothetic span of *g* | -Reading Guide 9<br>Gottfredson, 1997 (47p) | |
| Week 7<br>(10/15, 10/17) | Individual differences in cognitive abilities: human capital | -Reading Guide 10<br>Benbow & Stanley, 1996 (31p) | Quiz 7 |
| | Sex differences in cognitive abilities: Presence and implications | -Reading Guide 11<br>Hedges & Nowell, 1995 (5p)<br>Wang et al., 2013 (5p) | |
| Week 8<br>(10/22, 10/24) | GWAS of intelligence and education | -Reading Guide 12<br>Belsky et al., 2016 (14p) | Quiz 8 |
| | The structure and measurement of primary personality traits | -Reading guide 13<br>Personality inventories | |
| Week 9<br>(10/29, 10/31) | Personality and values | -Reading Guide 14<br>McCrae & Costa, 1994 (3p)<br>Diener & Seligman, 2002 (4p) | Quiz 9 |
| | Causes of individual differences in personality traits | -Reading Guide 15<br>Bouchard et al., 1990 (6p)<br>Jang et al., 1996 (13p) | |

| Week | Topic | Reading Guide<br>(Turn in Upon Arrival) | Weekly Retrieval |
|---|---|---|---|
| **Week 10**<br>**(11/5, 11/7)** | Personality and life outcomes Part I | -Reading Guide 16<br>Hazan & Shaver, 1987 (13p)<br>Bleske-Rechek et al., 2021 (6p) | Quiz 10 |
| | Personality and life outcomes Part II | -Reading Guide 17<br>Moffitt et al., 2011 (6p) | |
| **Week 11**<br>**(11/12, 11/14)** | Assortative mating | -Reading Guide 18<br>Buss, 1985 (5p) | Quiz 11 |
| | Marriage and divorce | -Reading Guide 19<br>Jockin et al., 1996 (10p) | |
| **Week 12**<br>**(11/19, 11/21)** | Vocational interests | -Reading Guide 20<br>Pozzebon et al.'s *Oregon Vocational Interest Scales* and Tracey's *Personal Globe Inventory* | |
| | Vocational interests/work values | -Reading Guide 21<br>Lippa, 2010 (12p) | |
| **Week 13**<br>**(11/26)** | Work values and life values | -Reading Guide 22<br>Lubinski et al., 2023 (20p) | Quiz 12<br>(Tuesday) |
| | 11/28: NO CLASS FOR THANKSGIVING HOLIDAY! | | |
| **Week 14**<br>**(12/3, 12/5)** | Sexual orientation | -Reading Guide 23<br>Rieger et al., 2008 (11p) | Quiz 13 |
| | Psychopathology | -Reading Guide 24<br>Plomin text Ch. 14 (12p)<br>Plomin text Ch. 15 (15p)<br>Adam, 2023 (4 p) | |
| **Week 15**<br>**(12/10, 12/12)** | Substance use and abuse | -Reading Guide 25<br>Schuckit, 1988 (5p) | Quiz 14 |
| | Body weight and exercise | -Reading Guide 26<br>Grilo & Pogue-Geile, 1991 (16p) | |
| **To submit by or before final exam time: Comprehensive review and reflection**<br>**(Instruction to be distributed after Thanksgiving)** | | | |

## Full citations


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