

PSYCHOLOGY 5-137
INTRODUCTION TO BEHAVIORAL GENETICS

Fall 2009
TuTh 14:30-15:45, N119 ELLIOTT HALL

OBJECTIVES: The course provides a broad overview of the application of genetic methods to the study of behavior, with a particular focus on human behavior. Emphasis is placed on the use of genetic designs and methods to address psychologically relevant questions concerning the nature and etiology of individual differences in behavior. Consequently, a significant portion of the course is devoted to learning human genetic methods, including traditional methodologies like twin and adoption studies as well as “wet-lab” methods like cytogenetics, molecular genetics, and linkage and association studies. The class seeks to provide students with the background they will need to critically evaluate the primary behavioral genetic research.

PREREQUISITES: Students must have completed an introductory statistics course and should have knowledge of genetics at least through high school biology (i.e., laws of transmission, basics of gene structure and function). While no additional study of genetics is assumed, students may need to make use of on-line genetics tutorials if they have not had a college-level biology or genetics course.

REQUIREMENTS: University policy states that to make satisfactory progress in a course, students should expect to spend 3 hours a week studying and in lecture for every credit taken. For this 3-credit course, students can thus expect an average workload of 9 hours per week. Assigned readings total approximately 250 pages of journal articles. Reading assignments are somewhat heavier prior to the midterm to provide students with extra time to complete their paper assignment.

Examinations: There will be a midterm and a *non-comprehensive* final. Questions will be short and long answer plus identification (i.e., no multiple choice). The final will cover only material not covered on the midterm. The relative weighting of lectures and readings on exams will be approximately 3/4 and 1/4, respectively. Although attendance at lecture is not mandatory, it will be very, very difficult to do well in this class if you don't attend lectures regularly. If you miss a lecture, you should get a copy of lecture notes from a fellow student.

Instructors are required to follow university policy governing the administration of final exams (<http://policy.umn.edu/Policies/Education/Education/EXAM.html>). Consequently, there is no early exam option for this course - all students must take both the final and the midterm exam at the scheduled time (indicated below) unless they have a legitimate excuse. Legitimate excuses include serious family emergencies, illness, etc. To be excused from an exam you must present written verification from a physician or other professional. Students who miss an exam or paper deadline for a legitimate reason, must contact the instructor no later than 24 hours after the exam or deadline (I have voice-mail at 625-8305 and e-mail at mcguez001@umn.edu). Students who miss taking both the final and the midterm with the class for whatever reason will be given an I (incomplete) for the course, so long as they have achieved passing grades on all other assignments. If you know now that you will be unable to make the scheduled final time, you should not take this class.

Readings: During the semester we will discuss five of the assigned readings during lecture. To ensure that students have read and understood the readings before they are discussed, students will be required to turn in two questions on the assigned readings on the dates scheduled below (these dates are the lectures preceding the lectures when the articles will be discussed and are subject to change – changes would only be to postpone readings – as announced in lecture). Late reading assignments will not be accepted. Plagiarism on the reading assignments (i.e., copying or paraphrasing someone else's questions, copying from the articles, etc. will be treated in the same manner as plagiarism on the term paper.)

Reaction Pieces: Behavioral genetic research is inherently interesting. Consequently research in this area of psychology often is the subject of popular media write-ups. During the semester you will be asked to read 5-6 such popular write-ups and be prepared to discuss them at lecture. The expectation is that students will read these short pieces and be prepared to discuss them so that they do not have to become a formal, graded part of the class. Reaction articles are only available at the course website.

Paper and Outline: A paper of approximately 12 - 15 pages providing a brief but critical review of a specific research topic in behavioral genetics will be due at the end of lecture on the last class meeting of the term. **PAPERS AND OUTLINES SUBMITTED AFTER THEIR RESPECTIVE DEADLINES WILL BE PENALIZED 5 POINTS FOR EACH DAY LATE. PAPERS THAT ARE MORE THAN 7 DAYS LATE WILL BE GIVEN A GRADE OF 0.**

Turning in Assignments: All written assignments must be turned in at either the beginning or end of the relevant lecture. Electronic submissions will not be accepted.

GRADING: The relative weighting of the midterm, final, reading assignments, and paper towards the final grade is, respectively, 25%, 35%, 15% and 25%. Graduate and undergraduate students are evaluated separately. Non-majors may take the course S/N; S requires C- or better work. Students who feel their exam or paper has been unfairly graded can resubmit the work to the instructor for regrading. Resubmission must be within one week of when the midterms were returned in class, and by the end of the first week of classes in Spring term for finals and papers. Grades will be determined as follows: A grades = those with total scores of at least 90% of the highest score achieved (again, separately for graduates and undergraduates); B grades = those with scores between 80% and 89% of the highest scores; C grades = 70% to 79% of maximum; D = 60% to 69% of maximum; and F = less than 60% of maximum. Plus and minus grades will be assigned based on the distribution of scores within each grade range. In previous years, grade distribution has typically been approximately 60% As, 35% Bs and 5% Cs for graduate students and 40% As, 40% Bs, 10% Cs, and 10% Ds or Fs for undergraduates.

A grade of I (incomplete) will be assigned only in those instances where the student has satisfactorily completed all course requirements up to the point when the I is requested, but is unable to complete the remaining course requirements due to exceptional circumstances. Is require prior arrangement with the course instructor and this arrangement must include provision for how the unsatisfied course requirements will be completed. It is expected that all incomplete assignments will be completed by the end of Fall 2008. Individuals who fail to take an exam or turn in a paper without making arrangements for taking an I will automatically be given a grade of F.

SCHOLASTIC MISCONDUCT: Any incident of scholastic misconduct will be reported to the CLA Scholastic Conduct Committee and the student will be given an F in the class. Academic misconduct involves the misrepresentation of a student's own work or the violation of the academic rights of another student. The College of Liberal Arts Classroom Grading and Examination Procedures states that, "Scholastic dishonesty includes (but is not limited to) cheating on assignments or examinations, plagiarizing (misrepresenting as one's own work anything done by another), inventing or falsifying research or other findings with the intent to deceive, submitting the same or substantially similar papers (or creative work) for more than one course without consent of all instructors, depriving another of necessary course materials, and sabotaging another's work." If you have any uncertainty about the appropriateness of academic conduct, it is your responsibility to consult the instructor or TA.

INSTRUCTOR:

Matt McGue

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WEB PAGE: The instructor maintains a web page at the following location:

<http://www.psych.umn.edu/courses/fall09/mcguem/psy5137/default.htm>

If you lose the url, you can link to the course site through the Department of Psychology's main web page. In addition to the syllabus, the web page includes copies of past exams, student course evaluations, and links to interesting genetics sites.

READINGS: Required journal articles are available at the course website

DATE	TOPIC	JOURNAL READINGS	ASSIGNMENT
Week 1: 8 September	Course Overview & Historical Background	Green et al. (2009)	Huntington Reaction: Survivor Facing Life with a Lethal Gene
10 September	Single Gene Effects		
Week 2: 15 September	Single Gene Effects cont.	Optional: DNA From the Beginning (DFB), Clinical Genetics 1-14	
17 September	Gene Structure & Function	Optional: DFB, Molecules of Genetics 15-28	
Week 3: 22 September	Cytogenetics 1	Optional: Your Genes your Health Linden et al. (2002)	Pasterski Questions
24 September	Cytogenetics 2	Pasterski et al. (2005)	
Week 4: 29 September	Genetic Regulation Congenital Adrenal Hyperplasia	Optional: DFB, Genetic Organization and Control 29-41	CAH Reaction: Gender Isn't Given
1 October	Multiple Gene Systems: Polygenic/Oligogenic	Moffitt et al. (2005)	
Week 5: 6 October	Traditional Methods: Twin Studies	Caspi et al. (2002) McDermott et al. (2009)	Caspi Questions
8 October	Traditional Methods: Adoption Studies	Duyme et al. (1999) Bouchard et al. (1990)	
Week 6: 13 October	Mental Retardation/Intelligence	Plomin et al. (1997) Haworth et al. (2009)	Adoption Reaction What the Junans Didn't Know
15 October	MR/Intelligence cont.	Posthuma et al. (2002)	

DATE	TOPIC	JOURNAL READINGS	ASSIGNMENT
YOU SHOULD HAVE BEGUN TO THINK ABOUT A PAPER TOPIC OPTIONAL SESSION ON ELECTRONIC INDEX SEARCHES RECOMMENDED FOR UNDERGRADUATES 11-12 FRIDAY 16 OCTOBER, N227 ELLIOTT HALL			
<u>Week 7:</u> 20 October	Nature of Environmental Influence	McGue et al. (1996)	
22 October	Pre-midterm Catch-up	Lyons et al. (1995)	
OPTIONAL MIDTERM REVIEW SESSION MONDAY 26 OCTOBER 1:30-3:00, N227 ELLIOTT HALL			
MIDTERM EXAM TUESDAY 27 OCTOBER MIDTERM COVERS ALL READING ASSIGNMENTS AND LECTURE MATERIALS THROUGH 22 OCTOBER			
<u>Week 8:</u> 27 October	MIDTERM		
29 October	Harris' Radical Idea	Harris (1995)	
<u>Week 9:</u> 3 November	Schizophrenia I		
5 November	Schizophrenia II		<u>Paper Topic Due</u>
<u>Week 10:</u> 10 November	Schizophrenia III	Purcell et al. (2009)	<u>Purcell Questions</u>
12 November	Gene Identification	Sanders et al.(2008) Barnett et al. (2009)	
<u>TWO COPIES OF PAPER OUTLINES MUST BE SUBMITTED NO LATER THAN BY 4:30 PM</u> <u>ON THURSDAY 12 NOVEMBER – YOU CAN SUBMIT YOUR OUTLINE EARLIER IF YOU WOULD LIKE</u>			
<u>Week 11:</u> 17 November	Endophenotype Concept & Race	Gottesman & Gould (2003)	<u>Race Reaction:</u> Race-Based Medicine
19 November	Affective Disorder I	Kendler et al. (2006)	
<u>Week 12:</u> 24 November	Affective Disorder II	Caspi et al. (2003) Risch et al. (2009)	
THANKSGIVING HOLIDAY 26 NOVEMBER			
<u>Week 13:</u> 1 December	Developmental Disabilities: ADHD	Gill et al. (1997) Brookes et al. (2006)	<u>Gill (1997) Questions</u>
3 December	Animal Alcohol Models I	Boyce-Rustay et al. (2006)	
<u>Week 14:</u> 8 December	Animal Alcohol Models II	Cook et al. (2005)	<u>Cook Questions</u>
10 December	Human Alcoholism	Krueger et al. (2002)	

Week 15: 15 December	Conclusion	Burmeister et al. (2008)	
FINAL EXAM REVIEW SESSION 12:00-1:30 MONDAY 21 DECEMBER N227 ELLIOT HALL			
FINAL EXAM: TUESDAY 22 DECEMBER 10:30-12:30, N119 ELLIOTT HALL COVERS ONLY MATERIAL NOT COVERED ON MIDTERM			

TEXTBOOK:

There is no required textbook. There are two options for student wanting to review basic genetics, both are optional. First, they could read Chapters 1-7 & 15 and 16 of the textbook used in this course last year:

Plomin, R., DeFries, J. C., McClearn, G. E., & McGuffin, P. (2008). *Behavioral Genetics* (Fifth ed.). New York: Worth.

Alternatively, there are several good web-based tutorials. I especially recommend the tutorial available through the **Dolan DNA Learning Center**, which has two general modules:

DNA From the Beginning: <http://www.dnafb.org/>

Your Genes Your Health: <http://www.ygyh.org/>

(Especially sections on Huntington Disease, PKU, Fragile X and Down Syndrome)

Also good are:

Basic Genetics: the Morgan and Molecular Biology Tutorials found at:

<http://avery.rutgers.edu/WSSP/Tutorials/indexNew.html>

23 and Me Genetics Primer (at YouTube):

Part I, What are Genes? <http://www.youtube.com/watch?v=eOvMNOMRRm8>

Part II: What are SNPs? <http://www.youtube.com/watch?v=5raJePXu00Q>

Part III: Where do genes come from? <http://www.youtube.com/watch?v=IjzZ7p-47P8>

Part IV: What are phenotypes? <http://www.youtube.com/watch?v=jHWJqzIH3w>

Other YouTube videos on:

DNA Structure: <http://www.youtube.com/watch?v=qy8dk5iS1f0>

Meiosis: http://www.youtube.com/watch?v=D1_-mQS_FZ0

Mitosis: <http://www.youtube.com/watch?v=VIN7K1-9QB0>

Transcription/Translation: http://www.youtube.com/watch?v=41_Ne5mS2ls

READING ASSIGNMENTS:

Five of the readings will be discussed in some depth in lecture. The remaining readings will only be covered briefly (if at all) in lecture, but could still be used for questions on the exams. To ensure that students have read the articles before they are discussed in lecture, students will be required to turn in two questions they have after reading the article by the lecture **PRECEDING** the date on which the article will be discussed (designated above but may be pushed back one meeting by the instructor depending on course progress).

Reading assignments will each be scored on 25-point basis, with your overall score for the Readings based on your top 4 scores. The questions you write may either be phrased in terms of an exam question or as a question stimulated by the research presented. If the former, you should provide an answer to the question. Each of the two questions you submit will be scored on a 1-12 point scale, with higher scores reflecting questions that are thoughtful and reflect a conceptual understanding of the paper (e.g., simply stating "Please explain . . ." will not score high). Scores of 12 will be given only for questions that indicate that the student has thought about the conceptual significance of the research. The 25th point will be awarded when both questions receive a score of

12. **Late assignments will not be accepted.** Evidence of plagiarism will be reported to the CLA Scholastic Conduct Committee and the student will be given an F in the class.

Article	Questions Due	Lecture Discussion
Pasterski et al. (2005)	Thursday 24 September	Tuesday 29 September
Caspi et al. (2002)	Tuesday 6 October	Thursday 8 October
Purcell et al. (2009)	Tuesday 10 November	Thursday 12 November
Gill et al. (1997)	Tuesday 1 December	Thursday 3 December
Cook et al. (2005)	Tuesday 8 December	Thursday 10 December

Articles (Those that are highlighted will be formally discussed in lecture):

Barnett, J. H., Heron, J., Goldman, D., Jones, P. B., & Xu, K. (2009). Effects of Catechol-O-Methyltransferase on Normal Variation in the Cognitive Function of Children. *American Journal of Psychiatry*, 166(8), 909-916.

Bouchard, T. J., Lykken, D. T., McGue, M., Segal, N. L., & Tellegen, A. (1990). Sources of human psychological differences - The Minnesota Study of Twins Reared Apart. *Science*, 250(4978), 223-228.

Boyce-Rustay, J. M., Wiedholz, L. M., Millstein, R. A., Carroll, J., Murphy, D. L., Daws, L. C., et al. (2006). Ethanol-related behaviors in serotonin transporter knockout mice. *Alcoholism-Clinical and Experimental Research*, 30(12), 1957-1965.

Brookes, K. J., Mill, J., Guindalini, C., Curran, S., Xu, X. H., Knight, J., et al. (2006). A common haplotype of the dopamine transporter gene associated with attention-deficit/hyperactivity disorder and interacting with maternal use of alcohol during pregnancy. *Archives of General Psychiatry*, 63(1), 74-81.

Burmeister, M., McInnis, M. G., & Zollner, S. (2008). Psychiatric genetics: progress amid controversy. *Nature Reviews Genetics*, 9(7), 527-540.

Caspi, A., Sugden, K., Moffitt, T. E., Taylor, A., Craig, I. W., Harrington, H., et al. (2003). Influence of life stress on depression: Moderation by a polymorphism in the 5-HTT gene. *Science*, 301(5631), 386-389.

Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I. W., et al. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, 297(5582), 851-854.

Cook, T. A. R., Luczak, S. E., Shea, S. H., Ehlers, C. L., Carr, L. G., & Wall, T. L. (2005). Associations of ALDH2 and ADH1B genotypes with response to alcohol in Asian Americans. *Journal of Studies on Alcohol*, 66, 196-204.

Duyme, M., Dumaret, A. C., & Tomkiewicz, S. (1999). How can we boost IQs of "dull children"? A late adoption study. *Proceedings of the National Academy of Sciences of the United States of America*, 96(15), 8790-8794.

Gill, M., Daly, G., Heron, S., Hawi, Z., & Fitzgerald, M. (1997). Confirmation of association between attention deficit hyperactivity disorder and a dopamine transporter polymorphism. *Molecular Psychiatry*, 2, 311-313.

Gottesman, II, & Gould, T. D. (2003). The endophenotype concept in psychiatry: Etymology and strategic intentions. *American Journal of Psychiatry*, 160(4), 636-645.

Green, R. C., Roberts, J. S., Cupples, L. A., Relkin, N. R., Whitehouse, P. J., Brown, T., et al. (2009). Disclosure of APOE Genotype for Risk of Alzheimer's Disease. *New England Journal of Medicine*, 361(3), 245-254.

- Harris, J. R. (1995). Where Is the Child's Environment - a Group Socialization Theory of Development. *Psychological Review*, 102(3), 458-489.
- Haworth, C.M.A., Wright, M.J., Luciano, M. et al. (2009). The heritability of general cognitive ability increases linearly from childhood to young adulthood. *Molecular Psychiatry*, advanced online publication.
- Kendler, K. S., Gatz, M., Gardner, C. O., & Pedersen, N. L. (2006). A Swedish national twin study of lifetime major depression. *American Journal of Psychiatry*, 163(1), 109-114.
- Krueger, R. F., Hicks, B. M., Patrick, C. J., Carlson, S. R., Iacono, W. G., & McGue, M. (2002). Etiologic connections among substance dependence, antisocial behavior, and personality: modeling the externalizing spectrum. *Journal of Abnormal Psychology*, 111(3), 411-424.
- Linden, M. G., & Bender, B. G. (2002). Fifty-one prenatally diagnosed children and adolescents with sex chromosome abnormalities. *American Journal of Medical Genetics*, 110(1), 11-18.
- Lyons, M. J., True, W. R., Eisen, S. A., Goldberg, J., Meyer, J. M., Faraone, S. V., et al. (1995). Differential heritability of adult and juvenile antisocial traits. *Archives of General Psychiatry*, 52(11), 906-915.
- McDermott, R., Tingley, D., Cowden, J., Frazzetto, G., & Johnson, D. D. P. (2009). Monoamine oxidase A gene (MAOA) predicts behavioral aggression following provocation. *Proceedings of the National Academy of Sciences of the United States of America*, 106(7), 2118-2123.
- McGue, M., Sharma, A., & Benson, P. (1996). The effect of common rearing on adolescent adjustment: Evidence from a U.S. adoption cohort. *Developmental Psychology*, 32, 604-613.
- Moffitt, T. E., Caspi, A., & Rutter, M. (2005). Strategy for investigating interactions between measured genes and measured environments. *Archives of General Psychiatry*, 62(5), 473-481.
- Pasterski, V. L., Geffner, M. E., Brain, C., Hindmarsh, P., Brook, C., & Hines, M. (2005). Prenatal hormones and postnatal socialization by parents as determinants of male-typical toy play in girls with congenital adrenal hyperplasia. *Child Development*, 76(1), 264-278.**
- Plomin, R., Fulker, D. W., Corley, R., & DeFries, J. C. (1997). Nature, nurture, and cognitive development from 1 to 16 years: A parent-offspring adoption study. *Psychological Science*, 8(6), 442-447.
- Posthuma, D., De Geus, E. J. C., Baare, W. F. C., Pol, H. E. H., Kahn, R. S., & Boomsma, D. I. (2002). The association between brain volume and intelligence is of genetic origin. *Nature Neuroscience*, 5(2), 83-84.
- Purcell, S. M., Wray, N. R., Stone, J. L., Visscher, P. M., O'Donovan, M. C., Sullivan, P. F., et al. (2009). Common polygenic variation contributes to risk of schizophrenia and bipolar disorder. *Nature*, 460(7256), 748-752.**
- Risch, N., Herrell, R., Lehner, T., Liang, K. Y., Eaves, L., Hoh, J., et al. (2009). Interaction Between the Serotonin Transporter Gene (5-HTTLPR), Stressful Life Events, and Risk of Depression A Meta-analysis. *JAMA-Journal of the American Medical Association*, 301(23), 2462-2471.
- Sanders, A. R., Duan, J., Levinson, D. F., Shi, J., He, D., Hou, C., et al. (2008). No significant association of 14 candidate genes with schizophrenia in a large European ancestry sample: Implications for psychiatric genetics. *American Journal of Psychiatry*, 165(4), 497-506.

PAPER ASSIGNMENT

The paper assignment consists of a short to medium length (approx. 12 to 15 pages) critical review of a specific behavioral genetic research topic. These papers should contain three components; i) a brief description of the research problem and the relevant behavioral genetic methodology used to address this problem, ii) a critical review of the relevant research literature, and iii) a brief conclusion that emphasizes what you see to be future research directions. Although secondary reviews (i.e., articles or book chapters that review the research literature but do not of a research area can be helpful, the paper assignment requires that you read and review the primary research literature. Papers based primarily on secondary reviews will receive a grade of F.

Grading:

The paper will be weighted 25% towards the total course grade. Papers will be graded on a 100 point basis with the following, approximate, breakdown,

1. Outline -- 20 points. By the scheduled date, students should submit an outline and tentative reference list. Outlines should be 2 to 4 pages long (including reference lists) and be sufficiently detailed so that the reader will be able to determine the content of the proposed paper (i.e., don't provide just section headings but rather provide a brief description of what will be covered in each section). References should include full citations so that the reader will be able to identify the relevant literature. For at least 4 of the references the outline should include a short (4-5 sentence) description of the article that includes a discussion of how it will be used in the paper. Outlines will be evaluated in terms of their coherence; references will be evaluated in terms of whether the major literature has been identified. Students are encouraged to submit their outlines early. **You must submit two typed copies** (one of which will be returned to you). Failure to submit 2 copies by the due date will result in a loss of 5 points.
2. Introduction to the research problem and methodology -- 20 points. You should discuss the theoretical background and why behavioral genetic methodology is relevant. Demonstrating a genetic influence is not, by itself, sufficient justification or background.
3. Critical evaluation of the literature -- 25 points. You should critically evaluate the relevant research literature. Your paper should not be an annotated bibliography of relevant studies only. Rather, you should discuss how each study addresses the substantive issues you raise in the introduction. How does the study contribute to our understanding of behavior? What are its limitations?
4. Conclusion and integration -- 25 points. You should integrate the research you review and draw some general conclusions. Is the research issue resolved? What additional research is needed? (i.e., What not whether -- do not conclude your paper by stating only that more research is needed; conclude by describing what type of research is needed and why)
5. Style -- 10 points. Your paper should be clearly written, proofed and properly referenced (APA style and format is recommended but not required; full citations should be given so that the reader can easily identify the papers you are reviewing) Papers which are extremely poorly written will be returned ungraded, and the student will be assigned an Incomplete and given one semester to turn in an acceptable paper.

Selecting a Topic:

You should select a topic that is relevant to behavioral genetics and that is sufficiently focused so as to allow you to deal with it adequately in 12 to 15 pages. It is best that you pick a topic that is of interest to you and involves the application of behavioral genetic research to a behavioral phenotype with which you are familiar. The greatest difficulty is in selecting a focused topic (e.g., reviewing the behavioral genetics of personality is too broad; you'd be much better off to focus on a specific personality characteristic - say, sensation seeking). In general you should not select as a topic something that is covered extensively in lecture. Also, you cannot submit a paper that you have submitted or will soon submit to satisfy an academic requirement in some other class. All topics must be approved by the instructor. For approval, students must submit by the scheduled date a tentative title for their paper as well as 1 brief (2-3 sentences) description of what the paper will cover. Example topics from last year include:

1. Are eating disorders heritable?
2. Influence of dopamine receptor genes on drug addiction
3. Genetic links to obesity
4. ADHD and genetic variation in the dopamine system
5. Genetic effects on relationship quality
6. Williams Syndrome: A unique behavioral profile
7. Behavioral genetics of religiousness
8. Role of genetics in physical performance
9. Velocardial Facial Syndrome: A review of behavioral characteristics
10. The role of structural variation in autism

Identifying the Literature:

Part of the assignment is for you to identify the relevant literature. You may consult the instructor and TA, but you should not expect them to provide you with the relevant citations. Good places to get started include your textbook, abstracts, electronic databases, and the following journals (which are available electronically through the UM e-journal collection):

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| <i>Behavior Genetics</i> | <i>Archives of General Psychiatry</i> |
| <i>British Journal of Psychiatry</i> | <i>Schizophrenia Bulletin</i> |
| <i>Molecular Psychiatry</i> | <i>American Journal of Human Genetics</i> |
| <i>Developmental Psychology</i> | <i>Psychological Bulletin</i> |
| <i>Journal of Personality and Social Psych</i> | <i>Nature Genetics</i> |
| <i>American Journal of Medical Genetics (Neuropsychiatric Genetics)</i> | |