

**PSYCHOLOGY 8935**  
**READINGS IN BEHAVIORAL GENETICS AND INDIVIDUAL DIFFERENCES**  
**PSYCHOLOGY (1 Credit S/N)**

**Spring 2009**  
**MONDAY, 12:00 – 1:00; N227 ELLIOTT HALL**

The journal club in Individual Differences Psychology and Behavioral Genetics continues this Spring. The format for the journal club is relatively freewheeling and eclectic. Each week participants are expected to read 2-3 related articles and come prepared to discuss the articles during the appointed hour. Nobody takes primary responsibility for leading the discussion; rather the expectation is that each participant will come prepared to discuss the readings for that week.

There are no prerequisites for enrolling in this seminar other than intellectual openness. In the past, the seminar has had participants from a broad array of backgrounds including Behavior Genetics, Social, Clinical, Industrial/Organizational Personality, Cognitive and Biological, and Counseling. All are welcome. Students who are interested should let Matt McGue know and **register for 1 credit S/N**. The seminar will begin on Monday January 26. The readings for the first and remaining meetings are given below. Readings are available in pdf format from the course website (if queried the account # is psy8935, the pw is behgen). **Note that we will begin discussing articles at our first meeting.**

**Week #1 – 26 January: Sex**

**Comment:** We began last term talking about sex so I thought it might make sense to do the same this term. Johnson et al. (Johnson, Carothers, & Deary, 2008) (That is, by the way, W. Johnson of both UM and U of Edinburgh fame!) provide a thorough discussion and analysis of a question we have considered previously in this seminar: Does the variance in the distribution in IQ vary by gender? This should provide a very nice lead in to a more general discussion of the sex-specific nature of genetic effects (Ober, Loisel, & Gilad, 2008).

**Week #2: 2 February: Individualized Genomics – Are We Ready?**

**Comment:** Lisa L. recommended that we consider more articles dealing with ethical issues. This is a good suggestion and here is my initial attempt to respond to it. Part of selling the HGP was that it would usher in a new era of medicine personalized to individual genomes. This week we will discuss how much progress we have made in this area. Hogarth et al. (Hogarth, Javitt, & Melzer, 2008) provide an overview of direct-to-consumer marketing of genetic tests, while McBride et al. (McBride et al., 2008) provide a more critical analysis of the science supporting this marketing effort. Although it adds to the reading burden, I thought it would be useful to look at two attempts to use genetics to forecast risk for complex disease (all we really need to know for the purpose of our discussion in seminar are the basic findings from these studies, not the details): Pharoah

et al. (Pharoah, Antoniou, Easton, & Ponder, 2008) attempt to forecast risk of breast cancer, while Meigs et al. (Meigs et al., 2008) do the same for T2D.

### **Week #3: 9 February: Epigenetics**

**Comment:** As in previous terms, we will have a session devoted to epigenetics. But unlike previous terms, this time we will look at some empirical research. Mill et al. (Mill et al., 2008) is an epigenetic analysis of the brains of schizophrenic and bipolar patients, with some very interesting results. Heijmans et al. (Heijmans, Kremer, Tobi, Boomsma, & Slagboom, 2007) use a twin study to show that methylation of the IGF2/H19 locus is due primarily to sequence variation. Alternatively, Heijmans et al. (Heijmans et al., 2008) show that prenatal exposure to famine has a strong affect on methylation at the same locus, so we'll need to sort out whether this all makes sense.

### **Week #4 – 16 February: Personality**

**Comment:** There is a growing literature showing that personality characteristics vary on average geographically. There are various hypotheses to account for this variation. Last year some of us met Markus Jokela (Jokela, Elovainio, Kivimaki, & Keltikangas-Jarvinen, 2008), who believes that selective migration might contribute to this geographic diversity. Alternatively, Heine et al. (Heine, Buchtel, & Norenzayan, 2008) argue that methodological limitations in the assessment of personality limit our ability to draw conclusions about cross-cultural comparisons. I thought it would be nice to pair these with a theoretical article by a leading personologist, Brent Roberts (Roberts & Jackson, 2008). From the title of his article, it looks like he has been influenced by the interesting honey bee work of his UI colleague, Gene Robinson.

### **Week #5 – 23 February: What's an Interaction Anyway?**

**Comment:** As we all know, GxE interaction has taken psychology, especially developmental psychology, by storm. But people use the term GxE, or for that matter any interaction, to stand for quite a few different things. De Gonzalez and Cox (De Gonzalez & Cox, 2007) review the multitude of definitions for interaction in the statistical literature, while Tabery (Tabery, 2008) provides a comprehensive and interesting history of the concept of GxE.

### **Week #6 – 2 March: Statistical Significance: Why Do We Bother?**

**Comment:** I know back-to-back sessions on methodology can be deadly for the seminar, but after today we will have a two week break to recover. Awhile back we had a discussion of alternatives to statistical significance testing and in particular *Psychological Science's* policy to strongly encourage researchers to report  $p_{\text{rep}}$  rather than  $p$  values. The  $p_{\text{rep}}$  approach was developed by Killeen (Killeen, 2005), so we'll try and work through his arguments. The contemporary scholar who has, in my opinion, done more than anyone else to deepen our understanding of the meaning of significance and replication is John Ioannidis. We'll pair the Killeen paper with two recent contributions by Ioannidis.

The first is his analysis of the meaning of a statistically significant result (Ioannidis, 2008); the second is his research groups analysis of publication bias in association studies (Kavvoura et al., 2008).

**Week #7 – 9 March: NO MEETING – I will be out of town**

**Week #8 – 16 March: NO MEETING- SPRING BREAK**

**Week #9 – 23 March: The Flynn Effect**

**Comment:** Last term participants in the seminar asked that we look at the Flynn effect again. Ok, so that's what we'll do this week. We will begin by reading two papers from Holland by te Nijenhuis and colleagues. The first paper shows that the Flynn effect applies primarily to non-g loaded tests (Nijenhuis & van der Flier, 2007), while the second paper nicely makes essentially the same point as it applies to score gains over repeated testings (te Nijenhuis, van Vianen, & van der Flier, 2007). Of course what we really want to know is if we, or more properly our children, are still getting smarter. Apparently not, at least in Denmark (Teasdale & Owen, 2008)

**Week #10 – 30 March: Early Interventions**

**Comment:** James Heckman is a very interesting and important economist. He is a Nobel Laureate from the University of Chicago and has Obama's ear on the importance of early childhood intervention. We previously read his *PNAS* paper on neurobiology and the workforce (Knudsen et al, 2006, *PNAS* 103(27) 10155-10162). This week we will read his recent review in *Economic Inquiry* (Heckman, 2008) as well as a short editorial published by him in *Science* (Heckman, 2006). I thought it would be nice to add to Heckman's heavily quantitative pieces this short article on preschool influences on mathematics achievement (Melhuish et al., 2008).

**Week #11 – 6 April: Human Genomic Variation**

**Comment:** Some time ago we agreed that it would be a good idea to read and discuss James F. Crow's excellent review on human genetic mutation (Crow, 2000). I thought it would be interesting to pair Crow's article with Varki et al.'s (Varki, Geschwind, & Eichler, 2008) recent interesting discussion about what is unique about being human, especially given our genomic overlap with other species.

**Week #12 – 13 April: Imprinting, the Battle of the Sexes, and Autism and Schizophrenia**

**Comment:** Christopher Badcock and Bernard Crespi have received a lot of attention of late about their unique theory on the origins of neurodevelopmental disorders. Badcock & Crespi (Badcock & Crespi, 2008) provide a brief and accessible overview of their theory,

a more comprehensive treatment of which can be found provided in the *Behavioral and Brain Sciences* piece by Crespi and Badcock (Crespi & Badcock, 2008). Given the centrality of imprinting to their theory, I thought it would be helpful to add a review article covering what we know about imprinting, although I realize this may be stretching the limits of what we can read and cover in one hour (Wilkinson, Davies, & Isles, 2007).

### **Week #13 – 20 April: Happiness**

**Comment:** David Lykken had a theory on what it took to be happy, and even wrote a very successful book on the subject. The field of happiness research has really taken off since David's "early" contributions. Smith et al. (Smith, Langa, Kabeto, & Ubel, 2005) argue that money can buy a little happiness, but any monetary advantage may be fleeting. Oishi et al. (Oishi, Diener, & Lucas, 2007) suggest that the psychologically optimal level of happiness depends on circumstances and may not always be the highest level. Finally Fowler (that's our collaborator) and Christakis (Fowler & Christakis, 2008) show that if you want to be happy you should choose your friends and acquaintances well.

### **Week #14 – 27 April: Social Mobility**

**Comment:** The seminar has generally taken the position that the major, but not sole, determinant of social success in the US is ability. In his recent review, Strenze (Strenze, 2007) argues that SES of origin is more important than ability. Alternatively, Paterson (Paterson, 2008) provides an analysis of social mobility in the British system.

### **Week #15 – 4 May: Ok, so maybe everyone doesn't love us**

**Comment:** Chaufan (Chaufan, 2007) provides a spirited critique of the amount of money being poured into genomics research, to which Robertson and Poulton (Robertson & Poulton, 2008) and Tuckson and Willard (Tuckson & Willard, 2008) reply. Chaufan (Chaufan, 2008) of course gets the last word.

## **FULL CITATIONS**

Badcock, C., & Crespi, B. (2008). Battle of the sexes may set the brain. *Nature*, 454(7208), 1054-1055.

Chaufan, C. (2007). How much can a large population study on genes, environments, their interactions and common diseases contribute to the health of the American people? *Social Science & Medicine*, 65(8), 1730-1741.

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