

James Dykes, Ph.D.

Associate Professor Emeritus

Department of Psychology

Research area: Visual information processing

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Bio

Jim Dykes started his academic training as a pre-med BIO major at Brown University, but subsequently transferred to the University of Texas at Austin where he earned both his BA in Psychology and his PhD in Human Experimental (specializing in Visual Information Processing with strong interests in Statistics and Cognitive Development). His switch to Experimental Psychology was largely driven by his undergraduate experience as a research assistant on a project using Sperling's partial report paradigm to investigate iconic memory. His early graduate research also investigated efferent readiness in motor memory and subitizing. His dissertation and related research used Garner redundancy gain and orthogonal interference to investigate how adults and children process multiple sources of visual information.

After receiving his PhD in Summer 1976, Jim Dykes joined the Psychology faculty at the rapidly expanding University of Texas at San Antonio in Fall 1976 (the semester in which UTSA grew from an upper-division and graduate institution into a full university). Checking out library books was somewhat problematic for a junior faculty member younger than the median student age, but he has subsequently served in various service roles including Undergraduate and Graduate Advisor of Record, Coordinator of PSY 3413 (Experimental Psychology Labs), Core Curriculum, Institutional Review Board for Human Participation in Experiments, and Computer Technology. The switch from mainframe cards to HeathKits to off-the shelf PCs was made possible by the expertise provided by dear colleagues in Computer Science.

Given his focus on Visual Information Processing, Jim Dykes frequently teaches PSY 3153 (Sensation and Perception), PSY 4163 (Sensory Processes), and PSY 4183 (Visual Information Processing). Given his interest in statistics, he also teaches PSY 5413 (Inferential Statistics) and PSY 3403 (Experimental Psychology). He enjoys teaching PSY 1013 (Introduction to Psychology), PSY 2573 (Psychology of Thought), and PSY 3013 (Cognition) and grows with his students when using new technology and when teaching interdisciplinary and team-taught Honors seminars in Cognitive Science, Mind's Eye: Color, and Nature vs Nurture.

Jim's research interests have also grown. His interest in human processing of multidimensional visual information has led to investigations into face perception and Stroop Interference. His interest in statistics has led to improving the sensitivity and reliability of contrast acuity measures. His interest in computers has led to investigating the relative merits of contrast acuity tests and the maintenance of color appearance across various computer displays. His interest in color modeling has led to investigations of the compatibility between aircrew cockpit

information and laser eye protection within the visible spectrum. He is a part-time consultant with Northrop Grumman Information Technology in support of USAF HEDO at Brooks City Base.

Degrees

- Ph.D. in Human Experimental Psychology, 1976, University of Texas at Austin
- B.A. in Psychology, 1972, University of Texas at Austin

Recent Courses

- 1013 *Introduction to Psychology*
- 2543 *Theories of Learning*
- 2573 *Psychology of Thought*
- 3153 *Sensation and Perception*
- 5413 *Inferential Statistics (MS level)*

Research in Progress

- Effects of context on color constancy for computer stimuli viewed through color filters.
- Stroop and Garner interference in a target search task using a helmet-mounted display to augment dual-task performance on a computer.

Recent Publications

- McLin, L., Dykes, J., Garcia, P., & Cantu, N. (2003, December). Comparing Contrast Acuity Functions. Poster presented at American Academy of Optometry, Dallas, TX.
- Dykes, J.R., Martinsen, G.L., Kuyk, T., McLin, L.N., Garcia, P.V., & Salcedo, N.C. (2004, December). Measuring the Impact of Laser Eye Protection Devices on Color Perception. Poster presented at the American Academy of Optometry, Tampa, FL.
- Dykes, J. (2005). Psychophysical Test of Contrast Acuity to Aid Operational Effectiveness of Aircrew Laser Eye Protection (LEP), AFRL-HE-BR-TR-2005-0134, USAF Research Laboratory, Brooks City Base, TX, 78235.
- Dykes, J., Maier, D., Schmeisser, E., McLin, L., and Garcia, P. (2005) AFRL-HE-BR-TR-2005-0042, Quantifying Color Perception as a Function of In-Band Laser Eye Protection. May 2005, USAF Research Laboratory, Brooks City-Base TX 78235.
- Dykes, J. (2009). AFRL-RH-BR-TR-2009-0051. Modeling Mesopic Vision Based on Measured Photoreceptor Sensitivity. USAF Research Laboratory, Brooks City-Base, TX 78235.
- Kuyk T, Dykes J, LaFrance M, McLin L. (2010) Predicting errors in color naming caused by laser eye protection. Poster presented at the Association for Research in Vision and Ophthalmology Annual Meeting. Fort Lauderdale, FL. May 2- 6, 2010.

Additional Information

Honors and Awards

- 2002 Air Force Research Laboratory Commander's Cup Team Award.
- U.S. Army Research Office Instrumentation Grant (with David M. Johnson, PI) – Bio/Chemical Sensors, Biophysical and Biocompatible Materials Initiative Instrumentation Support. Awarded 9/2003. Instrumentation grant for a Pritchard PR-1980B spectrophotometer (\$71, 000).
- U.S.A.F. H.E. HBCU/MI Grant - Psychophysical Test of Contrast Acuity to Aid Operational Effectiveness of Aircrew Laser Eye Protection (LEP). 12 January 2004 (\$108, 721).
- U.S.A.F. H.E. HBCU/MI Grant - Modeling Mesopic Vision Based on Measured Photoreceptor Sensitivity (\$143, 082). June 29, 2007

Academic and Professional Activities

- American Psychological Association (member) and Division 3 (Experimental Psychology)
- American Psychological Society (member)
- Psychonomic Society (member)
- Consultant to TASC for AFRL.RHDO at Tri-Service Research Laboratory at Fort Sam Houston