SYLLABUS
PRINCIPLES OF QUANTITATIVE GENETICS
SISG Module 9, Seattle, 15 – 17 July 2019

INSTRUCTORS:

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LECTURE SCHEDULE

Monday, 15 July

8:30	10:00 am	1. Population Genetics Framework (Walsh)
10:00	10:30 am	Break
10:30	12:00	2. Fisher's Variance Decomposition (Walsh)
12:00	1:30 pm	Lunch
1:30	3:00 pm	3. Resemblance Between Relatives, Heritability (Walsh)
3:00	3:30 pm	Break
3:30	5:00 pm	4. Artificial Selection (Walsh)

Tuesday, 16 July

8:30	10:00 am	5. Inbreeding and Crossbreeding (Walsh)
10:00	10:30 am	Break
10:30	12:00	6. Correlated Characters (Walsh)
12:00	1:30 pm	Lunch
1:30	3:00 pm	7. Estimation of basic genetic parameters (Rosa)
3:00	3:30 pm	Break
3:30	5:00 pm	8. Mixed Models, BLUP Breeding Values (Rosa)

Wednesday, 17 July

8:30	10:00 am	9. QTL/Association Mapping (Rosa)
10:00	10:30 am	Break
10:30	12:00	10. Path Analysis (Rosa)

ADDITIONAL BOOKS ON QUANTITATIVE GENETICS

General

Falconer, D. S. and T. F. C. Mackay. *Introduction to Quantitative Genetics*, 4th Edition

Lynch, M. and B. Walsh. 1998. *Genetics and Analysis of Quantitative Traits*. Sinauer.

Roff, D. A. 1997. *Evolutionary Quantitative Genetics*. Chapman and Hall.

Mather, K., and J. L. Jinks. 1982. *Biometrical Genetics*. (3rd Ed.) Chapman & Hall.

Walsh, B,. and M. Lynch. 2018. *Evolution and Selection of Quantitative Traits*. Oxford.

Animal Breeding

Cameron, N. D. 1997. *Selection Indices and Prediction of Genetic Merit in Animal Breeding*. CAB International.

Mrode, R. A. 1996. *Linear Models for the Prediction of Animal Breeding Values.* CAB International.

Simm, G. 1998. Genetic Improvement of Cattle and Sheep. Farming Press.

Turner, H. N., and S. S. Y. Young. 1969. *Quantitative Genetics in Sheep Breeding*. Cornell University Press.

Weller, J. I. 2001. *Quantitative Trait Loci Analysis in Animals.* CABI Publishing.

Plant Breeding

Acquaah, G. 2007. *Principles of Plant Genetics and Breeding*. Blackwell.

Bernardo, R. 2002. *Breeding for Quantitative Traits in Plants.* Stemma Press.

Hallauer, A. R., and J. B. Miranda. 1986. *Quantitative Genetics in Maize Breeding*. Iowa State Press.

Mayo, O. 1987. *The Theory of Plant Breeding.* Oxford.

Sleper, D. A., and J. M. Poehlman. 2006. *Breeding Field Crops*. 5th Edition. Blackwell

Wricke, G., and W. E. Weber. 1986. *Quantitative Genetics and Selection in Plant Breeding.* De Gruyter.

Humans

Khoury, M. J., T. H. Beaty, and B. H. Cohen. 1993. *Fundamentals of Genetic Epidemiology.* Oxford.

Plomin, R., J. C. DeFries, G. E. McLearn, and P. McGuffin. 2002. *Behavioral Genetics* (4th Ed) Worth Publishers.

Sham, P. 1998. *Statistics in Human Genetics*. Arnold.

Thomas, D. C. 2004. *Statistical Methods in Genetic Epidemiology*. Oxford.

Weiss, K. M. 1993. *Genetic Variation and Human Disease*. Cambridge.

Ziegler, A., and I. R. Konig. 2006. *A Statistical Approach to Genetic Epidemiology*. Wiley.

Statistical and Technical Issues

Bulmer, M. 1980. *The Mathematical Theory of Quantitative Genetics*. Clarendon Press.

Kempthorne, O. 1969. *An Introduction to Genetic Statistics*. Iowa State University Press.

Saxton, A. M. (Ed). 2004. *Genetic Analysis of Complex Traits Using SAS*. SAS Press.

Sorensen, D., and D. Gianola. 2002. *Likelihood, Bayesian, and MCMC Methods in Quantitative Genetics*. Springer.