

PROGRAMA DE CURSO

Código	Nombre			
IN7608	Directed Work in Spatial Optimization			
Nombre en Inglés				
Directed Work in Spatial Optimization				
SCT	Créditos	Horas de Cátedra	Horas Docencia Auxiliar	Horas de Trabajo Personal
6	6	0	0	10
Requisitos			Carácter del Curso	
IN3701/MA3701/MA3711/AUTOR			Electivo de Pregrado, MGO y DSI.	
Resultados de Aprendizaje				
The students will be asked to choose a research topic and make significant progress by the end of the semester. The expectation as to what to deliver will be determined on an individual basis.				

Actividades de Aprendizaje	Evaluación General
- Practice scientific writing in English; - Learn to conceptualize and define study plans and study design; - Practice writing code to implement study plan; - Learn to interpret and communicate study findings; and - Practice giving scientific presentations in English?	We are going to have weekly meetings where the students are expected to present their work in progress and provide input for the other students. By the end of the course, the students are required to complete a draft report about their work, preferably in the form of a draft manuscript. The final grade (NF) will be determined as follows: 50% participation grade during the semester + 50% final report grade.

Bibliografía

Scientific papers will be provided for reading assignments. The following list is not all-inclusive. Additional papers might be assigned based on the students' progress and evolution of interest:

- St. John, R., S.F. Tóth, and Z. Zabinsky. In Press. Optimizing the Geometry of Wildlife Corridors in Conservation Reserve Design. *Operations Research*.
- Ross, K., S.F. Tóth, and W. Jaross. 2018. Forest Harvest Scheduling with Endogenous Costs. *Interfaces* 48(3):260-270.
- Kushch, S.A., S.F. Tóth, R. Deal and G.J. Ettl. 2016. Multi-objective optimization to evaluate tradeoffs among forest ecosystem services following fire hazard reduction in the Deschutes National Forest, USA. *Ecosystem Services* 22(2016): 328-347.
- Ross, K. & S.F. Tóth. 2016. A Model for Managing Edge Effects in Harvest Scheduling Using Spatial Optimization. *Scandinavian J. of Forest Research* 37(1): 346-354.
- St. John, R., K. Öhm, and S.F. Tóth, P. Sandström, A. Korosuo, and L.O. Eriksson. 2016. Combining Spatiotemporal Corridor Design for Reindeer Migration with Harvest Scheduling in Northern Sweden. *Scandinavian J. of Forest Research* 37(1): 355-363.
- McDill, M.E., S.F. Tóth, R. St. John, J. Braze, and S.A. Rebain. 2016. Comparing Model I and Model II Formulations of Spatially-Explicit Harvest Scheduling Models with Adjacency Constraints. *Forest Science* 62(1): 28-37.
- St. John, R., and S.F. Tóth. 2015. Spatially-Explicit Forest Harvest Scheduling with Difference Equations. *Annals of Operations Research* 232(1):235-257.
- Könnyű, N. and S.F. Tóth. 2013. A Cutting Plane Algorithm for Area-Based Adjacency Formulations in Harvest Scheduling Models. *Eur. Journal of Operational Research* 228(1): 236-248.
- Burns, E.S., S.F. Tóth, and R.G. Haight. 2013. A Modeling Framework for Life History-Based Conservation Planning. *Biological Conservation* 158(1): 14-25.
- Tóth, S.F., R.G. Haight and L.W. Rogers. 2011. Dynamic Reserve Selection: Modeling Land Price Feedback Effects in Strategic Land Retention. *Operations Research* 59(5):1059-1078.
- Tóth, S.F., R.G. Haight, S.A. Snyder, S. George, J.R. Miller, M.S. Gregory and A.M. Skibbe 2009. Reserve Selection with Minimum Contiguous Area Restrictions: An Application to Open Space Protection Planning in Suburban Chicago. *Biological Conservation* 142(8): 1617-1627.
- Tóth, S.F. and M.E. McDill 2009. Finding Efficient Harvest Schedules under Three Conflicting Objectives. *Forest Science* 55(2): 117-131.
- Tóth, S.F. and M.E. McDill 2009. Finding Efficient Harvest Schedules under Three Conflicting Objectives. *Forest Science* 55(2): 117-131.
- Tóth, S.F., and M.E. McDill 2008. Promoting Large, Compact Mature Forest Patches in Harvest Scheduling Models. *Environmental Modeling and Assessment* 13(1):1-15.
- Tóth, S.F., M.E. McDill, and Stephanie Rebain 2006. Exploring the Efficient Frontier of a Bi-Criteria, Spatially Explicit, Harvest Scheduling Model. *Forest Science* 52(1):93-107.