



# Integrating SECD Prenatal Development Module into Nursing/Health courses

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The following is a list of typical Nursing/Health courses with suggestions of relevant content in the SECD - Prenatal Development Module.

See the Appendix for a complete listing of the **Table of Contents, topics and researchers** interviewed. In some courses, for example, maternal health or fetal development, the full module may be relevant.

SECD's **Search Tool** may be helpful when choosing SECD content to support learning objectives in courses/programs.

For **guest access to the module**, contact: Mia Elfenbaum – [melfenbaum@rrc.ca](mailto:melfenbaum@rrc.ca)

Course	Relevant topics	Module page
Issues, Politics and Public Policy	<ul style="list-style-type: none"><li>• Determinants of health</li><li>• Health disparities</li></ul>	1.2 Maternal contexts: Influences on fetal health
	<ul style="list-style-type: none"><li>• Population health</li></ul>	2.1 Epidemiology
	<ul style="list-style-type: none"><li>• Public health priorities</li></ul>	3. Healthy preconception and prenatal behaviours
	<ul style="list-style-type: none"><li>• Disease prevention and health promotion</li><li>• Preconception health for men</li><li>• Alcohol and pregnancy</li></ul>	3.1 Improving nutrition
	<ul style="list-style-type: none"><li>• Social environments</li><li>• Prenatal violence screening</li><li>• Family planning</li><li>• Physical environments</li></ul>	3.2 Safer environments
	<ul style="list-style-type: none"><li>• Prenatal mental health and social supports</li></ul>	3.3 Improving social supports



Course	Relevant topics	Module page
Growth and Development	<ul style="list-style-type: none"><li>• Prenatal growth</li><li>• Prenatal development</li><li>• Birth</li></ul>	1. Introduction to prenatal development
	<ul style="list-style-type: none"><li>• Stress in the womb</li><li>• Developmental origins of health and disease</li></ul>	1.1 Womb as environment
	<ul style="list-style-type: none"><li>• Determinants of health</li><li>• Adversity</li></ul>	1.2 Maternal contexts: Influences on fetal health
	<ul style="list-style-type: none"><li>• Population health</li></ul>	2.1 Epidemiology
	<ul style="list-style-type: none"><li>• Maternal obesity, excessive weight gain &amp; diabetes</li><li>• Unbalanced nutrition</li><li>• Microbiome</li><li>• Prematurity</li></ul>	2.2 Nutrition
	<ul style="list-style-type: none"><li>• Maternal stress</li><li>• Prenatal alcohol and the HPA axis</li><li>• Synthetic glucocorticoids and the HPA axis</li></ul>	2.3 Prenatal stress
	<ul style="list-style-type: none"><li>• Complications of pregnancy, labour and delivery</li></ul>	2.4 Promotion of fetal health and well-being
	<ul style="list-style-type: none"><li>• Brain development</li><li>• Plasticity</li></ul>	2.5 Learning and communicating in the womb
	<ul style="list-style-type: none"><li>• Disease prevention and health promotion strategies</li><li>• Nutrition</li></ul>	3.1 Improving nutrition



Course	Relevant topics	Module page
Global health	<ul style="list-style-type: none"><li>• Millennium and Sustainable Development Goals (see last 'Want to know more' on page)</li><li>• Childbirth risks and treatments</li></ul>	1. Introduction to prenatal development
	<ul style="list-style-type: none"><li>• Culture</li><li>• Adolescent pregnancy</li></ul>	1.2 Maternal contexts: Influences on fetal health
	<ul style="list-style-type: none"><li>• Prenatal care</li><li>• Population health</li></ul>	2.1 Epidemiology
	<ul style="list-style-type: none"><li>• Prenatal and preconception care (with international examples)</li><li>• Four delays</li></ul>	2.4 Promotion of fetal health and well-being
	<ul style="list-style-type: none"><li>• Cultural context</li></ul>	3. Healthy preconception and prenatal behaviours
	<ul style="list-style-type: none"><li>• Social environments</li></ul>	3.2 Safer environments
	<ul style="list-style-type: none"><li>• Men and reproductive health</li><li>• Midwifery</li></ul>	3.3 Improving social supports



Course	Relevant topics	Module page
Epidemiology	<ul style="list-style-type: none"><li>• Developmental origins of health and disease</li></ul>	1.1 Womb as environment
	<ul style="list-style-type: none"><li>• Determinants of health</li><li>• Adversity</li><li>• Health disparities</li></ul>	1.2 Maternal context: Influences on fetal health
	<ul style="list-style-type: none"><li>• Research methods</li></ul>	2. Research
	<ul style="list-style-type: none"><li>• Prenatal care</li><li>• Social determinants of health</li><li>• Population health</li><li>• Preconception care</li></ul>	2.1 Epidemiology
	<ul style="list-style-type: none"><li>• Prenatal and preconception care</li></ul>	2.4 Promotion of fetal health and well-being
	<ul style="list-style-type: none"><li>• Nutritional environments</li><li>• Prenatal nutrition programs</li><li>• Disease prevention and health promotion strategies</li></ul>	3.1 Improving nutrition



Course	Relevant topics	Module page
Pathophysiology	<ul style="list-style-type: none"><li>• Developmental plasticity</li><li>• Gene by environment interactions</li></ul>	1. Introduction to prenatal development
	<ul style="list-style-type: none"><li>• Developmental origins of health and disease</li><li>• Stress in the womb</li><li>• Placenta</li></ul>	1.1 Womb as environment
	<ul style="list-style-type: none"><li>• Adversity</li></ul>	1.2 Maternal contexts: Influences on fetal health
	<ul style="list-style-type: none"><li>• Diabetes</li><li>• Obesity</li><li>• Unbalanced nutrition</li><li>• Microbiome</li></ul>	2.2 Nutrition
	<ul style="list-style-type: none"><li>• Maternal stress</li><li>• Prenatal alcohol and the HPA axis</li><li>• Synthetic glucocorticoids and the HPA axis</li></ul>	2.3 Prenatal stress



Course	Relevant topics	Module page
Families	<ul style="list-style-type: none"><li>• Pregnancy stories</li><li>• Maternal adversity</li><li>• Prenatal and postpartum depression</li><li>• Adolescent pregnancy and mental health</li></ul>	1.2 Maternal contexts: Influences on fetal health
	<ul style="list-style-type: none"><li>• Preconception care</li></ul>	2.1 Epidemiology
	<ul style="list-style-type: none"><li>• Public health priorities</li><li>• Empowering adolescents</li></ul>	3. Healthy preconception and prenatal behaviours
	<ul style="list-style-type: none"><li>• Disease prevention and health promotion</li><li>• Preconception health for men</li><li>• Alcohol and pregnancy</li></ul>	3.1 Improving nutrition
	<ul style="list-style-type: none"><li>• Social environments</li><li>• Prenatal violence screening</li><li>• Family planning</li><li>• Physical environments</li></ul>	3.2 Safer environments
	<ul style="list-style-type: none"><li>• Prenatal mental health and social supports</li></ul>	3.3 Improving social supports



## Appendix

SECD - Prenatal Development Module Table of Contents	Main Topics	Researchers Interviewed
<b>Overview</b>		
1. Introduction	<ul style="list-style-type: none"> <li>• <b>Gene by environment interactions and developmental plasticity</b></li> <li>• <b>Prenatal growth</b> (metabolism, fetal growth)</li> <li>• <b>Prenatal development</b> (brain development, environmental influences, sex determination)</li> <li>• <b>Birth</b> (prematurity, labour and delivery)</li> </ul>	Sir Peter Gluckman Meaghan Jones Stephen Lye Stephen Matthews Maggie Morris Brandy Wicklow
1.1 Womb as environment	<ul style="list-style-type: none"> <li>• <b>Placenta</b> (roles, preeclampsia, smoking)</li> <li>• <b>Stress in the womb</b> (HPA axis, fetal programming, self-care)</li> <li>• <b>Developmental origins or health and disease (DOHAD)</b> (epigenetics, fetal programming)</li> </ul>	Alan Bocking Sir Peter Gluckman Daniel Hardy Chris Kuzawa Meaghan Jones Stephen Lye Stephen Matthews Maggie Morris Michael Skinner Joanne Weinberg Brandy Wicklow

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<p>1.2 Maternal context: Influences on fetal health</p>	<ul style="list-style-type: none"><li>• <b>Pregnancy stories</b></li><li>• <b>Maternal body changes and nutritional needs</b> (physiologic adaptations, nutrition needs, weight gain)</li><li>• <b>Determinants of health</b> (cultural influences)</li><li>• <b>Adversity and other maternal influences on the fetus</b> (age, depression, FASD, diabetes)</li><li>• <b>Health disparities</b> (epigenetics, social disparities, Indigenous populations)</li></ul>	<p>Alan Bocking Cindy-Lee Dennis Chris Kuzawa Maggie Morris Wanda Phillips-Beck Brandy Wicklow</p>
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SECD - Prenatal Development Module Table of Contents	Main Topics	Researchers Interviewed
<b>Research</b>		
2. Prenatal research	<ul style="list-style-type: none"><li>• <b>Research methods</b> (questionnaire development, Ontario Birth Study, animal research)</li></ul>	Alan Bocking Maureen Heaman Alison Fleming Stephen Lye Joanne Weinberg
2.1 Epidemiology	<ul style="list-style-type: none"><li>• <b>Global maternal health</b></li><li>• <b>Prenatal care</b> (maternal health outcomes, social determinants of health, access and barriers to prenatal care)</li><li>• <b>Population health</b> (Indigenous health, breastfeeding decisions, Cuba's example, folic acid use)</li><li>• <b>Preconception care</b></li></ul>	Maureen Heaman Clyde Hertzman Maggie Morris Wanda Phillips-Beck Robin Williams
2.2 Nutrition	<ul style="list-style-type: none"><li>• <b>Maternal obesity, excessive weight gain &amp; diabetes</b> (environmental influences, origins of obesity, longer term offspring outcomes, epigenetics)</li><li>• <b>Unbalanced nutrition</b> (undernutrition, protein restriction)</li><li>• <b>Microbiome</b> (prematurity, probiotics)</li></ul>	Alan Bocking Bernard Crespi Sir Peter Gluckman Daniel Hardy Brandy Wicklow



SECD - Prenatal Development Module Table of Contents	Main Topics	Researchers Interviewed
2.3 Prenatal stress	<ul style="list-style-type: none"><li>• <b>Maternal stress</b> (cortisol, child development outcomes, role of placenta, brain development, coping strategies)</li><li>• <b>Prenatal alcohol and the HPA axis</b> (epigenetics, serotonin)</li><li>• <b>Synthetic glucocorticoids and the HPA axis</b></li></ul>	Daniel Hardy Bryan Kolb Chris Kuzawa Stephen Matthews Joanne Weinberg
2.4 Promotion of fetal health and well-being	<ul style="list-style-type: none"><li>• <b>Preconception care</b></li><li>• <b>Prenatal care</b> (adolescent pregnancy, HIV, preterm labour, bacterial infections, group prenatal care, four delays)</li><li>• <b>Prenatal education</b> (content, outcomes, recommendations)</li></ul>	Christine Ateah Alan Bocking Stephen Lye Maggie Morris
2.5 Learning and communicating in the womb	<ul style="list-style-type: none"><li>• <b>Prenatal neurological development</b> (sensory development, memory, plasticity)</li><li>• <b>Prenatal tuning</b> (maternal depression)</li></ul>	Ron Barr Bryan Kolb Janet Werker



SECD - Prenatal Development Module Table of Contents	Main Topics	Researchers Interviewed
Links to practice		
3. Healthy preconception and prenatal behaviours	<ul style="list-style-type: none"> <li>• <b>Promotion of healthy development</b> (reducing risk prenatally)</li> <li>• <b>Culture</b></li> </ul>	Alan Bocking Maggie Morris Wanda Phillips-Beck Robin Williams
3.1 Improving nutrition	<ul style="list-style-type: none"> <li>• <b>Prenatal nutrition</b></li> <li>• <b>Nutritional environments</b></li> <li>• <b>Prenatal nutrition programs</b></li> <li>• <b>Disease prevention and health promotion strategies</b> (public health, men’s health, alcohol and pregnancy)</li> </ul>	Sir Peter Gluckman Wanda Phillips-Beck Joanne Weinberg
3.2 Safer environments	<ul style="list-style-type: none"> <li>• <b>Social environments</b> (violence prevention, stress management, gender equality, family planning, adolescent unexpected pregnancy)</li> <li>• <b>Physical environments</b></li> </ul>	Sir Peter Gluckman Maggie Morris Pablo Nepomnaschy Wanda Phillips-Beck
3.3 Improving social supports	<ul style="list-style-type: none"> <li>• <b>Mental health supports</b></li> <li>• <b>Quality of prenatal care</b> (important aspects of prenatal care, involving men, midwifery, public health role)</li> <li>• <b>Access to prenatal care</b> (successful interventions)</li> <li>• <b>Future directions in child development practice</b></li> </ul>	Maureen Heaman Stephen Lye Wanda Phillips-Beck Robin Williams