



Integrating SECD - Prenatal Development Module into Nursing/Health courses

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 Content, 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

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



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



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

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



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

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

Appendix

SECD - Prenatal Development Module Table of Contents	Main Topics	Researchers Interviewed
Overview		
1. Introduction	<ul style="list-style-type: none"> • Gene by environment interactions and developmental plasticity • Prenatal growth (metabolism, fetal growth) • Prenatal development (brain development, environmental influences, sex determination) • Birth (prematurity, labour and delivery) 	Sir Peter Gluckman Meaghan Jones Stephen Lye Stephen Matthews Maggie Morris Brandy Wicklow
1.1 Womb as environment	<ul style="list-style-type: none"> • Placenta (roles, preeclampsia, smoking) • Stress in the womb (HPA axis, fetal programming, self-care) • Developmental origins of health and disease (DOHAD) (epigenetics, fetal programming) 	Alan Bocking Sir Peter Gluckman Daniel Hardy Chris Kuzawa Meaghan Jones Stephen Lye Stephen Matthews Maggie Morris Michael Skinner Joanne Weinberg Brandy Wicklow
1.2 Maternal context: Influences on fetal health	<ul style="list-style-type: none"> • Pregnancy stories • Maternal body changes and nutritional needs (physiologic adaptations, nutrition needs, weight gain) • Determinants of health (cultural influences) • Adversity and other maternal influences on the fetus (Age, depression, FASD, diabetes) • Health disparities (epigenetics, social disparities, Indigenous populations) 	Alan Bocking Cindy-Lee Dennis Chris Kuzawa Maggie Morris Wanda Phillips-Beck Brandy Wicklow

<p>SECD - Prenatal Development Module Table of Contents</p>	<p>Main Topics</p>	<p>Researchers Interviewed</p>
<p>Research</p>		
<p>2. Prenatal research</p>	<ul style="list-style-type: none"> • Research methods (questionnaire development, Ontario Birth Study, animal research) 	<p>Alan Bocking Maureen Heaman Alison Fleming Stephen Lye Joanne Weinberg</p>
<p>2.1 Epidemiology</p>	<ul style="list-style-type: none"> • Global maternal health • Prenatal care (maternal health outcomes, social determinants of health, access and barriers to prenatal care) • Population health (Indigenous health, breastfeeding decisions, Cuba's example, folic acid use) • Preconception care 	<p>Maureen Heaman Clyde Hertzman Maggie Morris Wanda Phillips-Beck Robin Williams</p>
<p>2.2 Nutrition</p>	<ul style="list-style-type: none"> • Maternal obesity, excessive weight gain & diabetes (environmental influences, origins of obesity, longer term offspring outcomes, epigenetics) • Unbalanced nutrition (undernutrition, protein restriction) • Microbiome (prematurity, probiotics) 	<p>Alan Bocking Bernard Crespi Sir Peter Gluckman Daniel Hardy Brandy Wicklow</p>

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

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