

# Course Syllabus

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## SOC 102

**Course Title:** Human Genetics/Genetic Screening

**Credits:** 1.0

**Course Description:** This course provides an introduction to the principles of genetics. Students are expected to master a basic understanding of how genetic traits are passed on and how the internal and external environment of the cell can affect this process. Emphasis is placed on understanding the effects of teratogens and the unique vulnerability of the fetus to exposure during key periods in development.

This course uses current research in midwifery and obstetrics to broaden the student's understanding of the NARM skills and MEAC essential competencies learned under clinical supervision.

### Learning Objectives

Learning objectives are identified through the linking of MEAC Essential Competencies and the NCM Degree Qualification Profile.

### Learning Activities

Read, listen to, watch assigned lesson materials.

Submit a written summary of current research.

Complete oral and/or written formative didactic assessments with final summative submission.

Identify and cite high-quality sources.

Use articulated reasoning while participating in an oral presentation, facilitated discussions and skills demonstrations.

Analyze a case study.

Create an infographic, handout, and/or community resource.

Optional: Develop a study aid.

Complete a final exam.

*Note: The clinical requirement of NARM /Clinical Skills is completed at any time throughout the ASM apprenticeship during actual clinical practice and is NOT a requirement to complete this academic course. Typical clinical manifestations of knowledge learned in this course are identified in the learning objective document above.*

### Learning Materials / Resources:

*Please use textbooks less than 5 years old or the most recent edition.*

1. Moore, K., Persaud, T.V.N. and Torchia, M.G. Before we are born: Essentials of embryology and birth defects. 7th edition. Elsevier Health Sciences. 2011. [http://www.worldcat.org/title/before-we-are-born-essentials-of-embryology-and-birth-defects/oclc/972002013&referer=brief\\_results](http://www.worldcat.org/title/before-we-are-born-essentials-of-embryology-and-birth-defects/oclc/972002013&referer=brief_results)

2. **Coad, Jane. Anatomy and Physiology for Midwives. 3rd edition. Elsevier Churchill Livingston Press. 2012.** (<http://www.worldcat.org/title/anatomy-and-physiology-for-midwives/oclc/956654359/editions?editionsView=true&referer=br>)
3. **MEAC Abbreviated NARM Skills Form**  
(<http://www.midwiferycollege.org/AcademicProgram/Downloads/ASM/Clinical/Form-NARMSkills.pdf>)
4. **MEAC Core Competencies for Midwives** (<http://meacschools.org/wp-content/uploads/2014/12/Curriculum-Checklist-of-Essential-Competencies-rev-2014.pdf>)
5. **Midwives Model of Care®** (<http://cfmidwifery.org/mmoc/define.aspx>)
6. Students must find 1 article/study less than 5 years old. Recommended internet links as needed for latest developments in midwifery care:

- **The Cochrane Collaboration** (<http://www.cochrane.org/>)
- **EBSCO** (<http://ejournals.ebsco.com/login.asp?bCookiesEnabled=TRUE>)
- **National Library of Medicine** (<https://www.nlm.nih.gov/>)
- **PubMed** (<https://www.ncbi.nlm.nih.gov/pubmed/>)
- **ScienceDirect** (<http://www.sciencedirect.com/>)
- **Medscape** (<http://www.medscape.com/womenshealth>)
- **World Health Organization** (<http://www.who.int/en/>)

### **Evaluation Tools / Methods:**

























The minimum passing grade for all courses is a cumulative 70% / C-. Grades are not recorded until both the student and preceptor submit end of trimester evaluations and in the case of general education courses supervision is completed





















All assignments for this course are evaluated using the following criteria:




















1. Responses to each didactic assessment are evaluated utilizing the NCM rubrics and degree level profile.
2. Answers should reflect a thorough review of the current literature regarding best current practices in midwifery care.
3. Non-plagiarized paraphrased answers from the text which demonstrate appropriate comprehension of the learning objective. (Formative Assessment) Students and preceptors are encouraged to work together until the student masters the information. (Summative Assessment)
4. Random evaluation of cited sources and page numbers for each written assignment.















*Course credit: One Academic credit equals approximately 15 hours of formal time plus 30 hours of additional study or homework. Formal time is defined as the amount of time taken to answer the Learning Objectives to the level of 80% for midwifery courses and 70% for general education courses and to complete any learning activities to the preceptor's satisfaction, including any time spent face to face with the preceptor. Informal time includes any time spent actively reading relevant sources and textbook/s, researching Learning Objectives, and studying for examinations.*

## **Course Summary:**

Date	Details
Tue Jul 25, 2017	<div>  <b>Office Hours</b> (<a href="https://ncm.instructure.com/calendar?event_id=134&amp;include_contexts=course_155">https://ncm.instructure.com/calendar?event_id=134&amp;include_contexts=course_155</a>)         </div> <div>8am to 9am</div>
	<div>  <b>A Note on Community Building Activities</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8270">https://ncm.instructure.com/courses/155/assignments/8270</a> </div>
	<div>  <b>Basic Genetic Testing Information</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8298">https://ncm.instructure.com/courses/155/assignments/8298</a> </div>
	<div>  <b>Category X No More</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8297">https://ncm.instructure.com/courses/155/assignments/8297</a>)         </div>
	<div>  <b>Client Careers</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8281">https://ncm.instructure.com/courses/155/assignments/8281</a>)         </div>
	<div>  <b>DNA Replication</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8293">https://ncm.instructure.com/courses/155/assignments/8293</a>)         </div>
	<div>  <b>End of Course Exam</b> (<a href="https://ncm.instructure.com/courses/155/assignments/13387">https://ncm.instructure.com/courses/155/assignments/13387</a>)         </div>
	<div>  <b>Exams and Quizzes</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8271">https://ncm.instructure.com/courses/155/assignments/8271</a>)         </div>
	<div>  <b>Fetal Alcohol Syndrome</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8269">https://ncm.instructure.com/courses/155/assignments/8269</a>)         </div>
	<div>  <b>Intro to Genetics</b> (<a href="https://ncm.instructure.com/courses/155/assignments/15032">https://ncm.instructure.com/courses/155/assignments/15032</a>)         </div>
	<div>  <b>Journal Article Summary</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8272">https://ncm.instructure.com/courses/155/assignments/8272</a>)         </div>
	<div>  <b>Mitosis</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8292">https://ncm.instructure.com/courses/155/assignments/8292</a>)         </div>
	<div>  <b>NIPT</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8282">https://ncm.instructure.com/courses/155/assignments/8282</a>)         </div>
	<div>  <b>Optional NARM Like Exam</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8268">https://ncm.instructure.com/courses/155/assignments/8268</a> </div>
	<div>  <b>Optional: Create a Set of Flashcards to Study for the NARM Exam</b>  <a href="https://ncm.instructure.com/courses/155/assignments/15129">https://ncm.instructure.com/courses/155/assignments/15129</a> </div>
	<div>  <b>Results are Positive</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8299">https://ncm.instructure.com/courses/155/assignments/8299</a>)         </div>
	<div>  <b>SOC102-001 - Define gene.</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8208">https://ncm.instructure.com/courses/155/assignments/8208</a> </div>
	<div>  <b>SOC102-002 - Define genome.</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8209">https://ncm.instructure.com/courses/155/assignments/8209</a> </div>
	<div>  <b>SOC102-003 - Describe briefly how DNA is packaged into chromosomes.</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8210">https://ncm.instructure.com/courses/155/assignments/8210</a> </div>
	<div>  <b>SOC102-004 - Briefly describe how DNA is replicated.</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8211">https://ncm.instructure.com/courses/155/assignments/8211</a> </div>
	<div>  <b>SOC102-005 - Define mitosis.</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8212">https://ncm.instructure.com/courses/155/assignments/8212</a> </div>
	<div>  <b>SOC102-006 - Briefly describe how mitosis is related to the replication of genetic code.</b> (<a href="https://ncm.instructure.com/courses/155/assignments/8213">https://ncm.instructure.com/courses/155/assignments/8213</a>)         </div>
	<div>  <b>SOC102-007 - Briefly describe how DNA directs protein synthesis.</b>  <a href="https://ncm.instructure.com/courses/155/assignments/8214">https://ncm.instructure.com/courses/155/assignments/8214</a> </div>
	<div>  <b>SOC102-008 - Define phenotype.</b> </div>

Date	Details
	<a href="https://ncm.instructure.com/courses/155/assignments/8215">(<a href="https://ncm.instructure.com/courses/155/assignments/8215">https://ncm.instructure.com/courses/155/assignments/8215</a>)</a>
	 <a href="https://ncm.instructure.com/courses/155/assignments/8216">SOC102-009 - Define genotype.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8216">https://ncm.instructure.com/courses/155/assignments/8216</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8217">SOC102-010 - Explain how two people might express the same phenotype but have different genotypes.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8217">https://ncm.instructure.com/courses/155/assignments/8217</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8218">SOC102-011 - Define autosome.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8218">https://ncm.instructure.com/courses/155/assignments/8218</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8219">SOC102-012 - Define sex chromosome.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8219">https://ncm.instructure.com/courses/155/assignments/8219</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8220">SOC102-013 - Briefly describe the concept of alleles.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8220">https://ncm.instructure.com/courses/155/assignments/8220</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8221">SOC102-014 - What is the term that describes a pair of alleles that are identical?</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8221">https://ncm.instructure.com/courses/155/assignments/8221</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8222">SOC102-015 - What is the term that describes a pair of alleles that are different from each other?</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8222">https://ncm.instructure.com/courses/155/assignments/8222</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8223">SOC102-016 - Describe what is meant by family pedigree and sketch a graphic representation of one.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8223">https://ncm.instructure.com/courses/155/assignments/8223</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8224">SOC102-017 - Describe autosomal dominant inheritance.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8224">https://ncm.instructure.com/courses/155/assignments/8224</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8225">SOC102-018 - Describe autosomal recessive inheritance.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8225">https://ncm.instructure.com/courses/155/assignments/8225</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8226">SOC102-019 - Describe sex-linked inheritance.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8226">https://ncm.instructure.com/courses/155/assignments/8226</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8227">SOC102-020 - Give an example of a sex-linked trait.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8227">https://ncm.instructure.com/courses/155/assignments/8227</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8228">SOC102-021 - Describe fragile X-syndrome and how it is inherited.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8228">https://ncm.instructure.com/courses/155/assignments/8228</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8229">SOC102-022 - Describe mitochondrial inheritance and briefly explain its significance.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8229">https://ncm.instructure.com/courses/155/assignments/8229</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8230">SOC102-023 - Briefly describe how blood type is inherited.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8230">https://ncm.instructure.com/courses/155/assignments/8230</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8231">SOC102-024 - Describe how nondisjunction leads to an abnormal number of chromosomes.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8231">https://ncm.instructure.com/courses/155/assignments/8231</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8232">SOC102-025 - Define aneuploidy.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8232">https://ncm.instructure.com/courses/155/assignments/8232</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8233">SOC102-026 - Describe how Trisomy 13 (Patau's syndrome) affects the fetus.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8233">https://ncm.instructure.com/courses/155/assignments/8233</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8234">SOC102-027 - Describe how Trisomy 18 (Edward's syndrome) affects the fetus.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8234">https://ncm.instructure.com/courses/155/assignments/8234</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8234">SOC102-028 - Define polyploidy.</a>

Date	Details
	<a href="https://ncm.instructure.com/courses/155/assignments/8235">(<a href="https://ncm.instructure.com/courses/155/assignments/8235">https://ncm.instructure.com/courses/155/assignments/8235</a>)</a>
	 <a href="https://ncm.instructure.com/courses/155/assignments/8236">SOC102-029 - Explain what is meant by multifactorial inherited diseases.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8236">https://ncm.instructure.com/courses/155/assignments/8236</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8237">SOC102-030 - Describe what is meant by a structural chromosomal abnormality.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8237">https://ncm.instructure.com/courses/155/assignments/8237</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8238">SOC102-031 - Define a deletion.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8238">https://ncm.instructure.com/courses/155/assignments/8238</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8239">SOC102-032 - Given an example of a syndrome resulting from a microdeletion.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8239">https://ncm.instructure.com/courses/155/assignments/8239</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8240">SOC102-033 - Describe how a chromosomal translocation occurs.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8240">https://ncm.instructure.com/courses/155/assignments/8240</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8241">SOC102-034 - Describe how a chromosomal duplication occurs.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8241">https://ncm.instructure.com/courses/155/assignments/8241</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8242">SOC102-035 - Define chromosomal inversion.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8242">https://ncm.instructure.com/courses/155/assignments/8242</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8243">SOC102-036 - Define teratogen.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8243">https://ncm.instructure.com/courses/155/assignments/8243</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8244">SOC102-037 - Define the organogenetic period of development.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8244">https://ncm.instructure.com/courses/155/assignments/8244</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8245">SOC102-038 - What is the significance of teratogenic effect on the organogenetic period?</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8245">https://ncm.instructure.com/courses/155/assignments/8245</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8246">SOC102-039 - What is the critical period for fetal brain development in which it is most susceptible to damage by teratogens?</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8246">https://ncm.instructure.com/courses/155/assignments/8246</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8247">SOC102-040 - How does a drug or substance become a proven teratogen?</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8247">https://ncm.instructure.com/courses/155/assignments/8247</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8248">SOC102-041 - Describe how alcohol acts as a teratogen.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8248">https://ncm.instructure.com/courses/155/assignments/8248</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8249">SOC102-042 - Describe how DES (Diethylstilbestrol) acts a teratogen.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8249">https://ncm.instructure.com/courses/155/assignments/8249</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8250">SOC102-043 - Give an example of an antibiotic that is considered a teratogen.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8250">https://ncm.instructure.com/courses/155/assignments/8250</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8251">SOC102-044 - Give an example of an anticoagulant drug that is a teratogen.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8251">https://ncm.instructure.com/courses/155/assignments/8251</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8252">SOC102-045 - Describe the teratogenic effects of mercury.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8252">https://ncm.instructure.com/courses/155/assignments/8252</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8253">SOC102-046 - Describe the teratogenic effects of lead.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8253">https://ncm.instructure.com/courses/155/assignments/8253</a> )
	 <a href="https://ncm.instructure.com/courses/155/assignments/8254">SOC102-047 - Describe the teratogenic effects of PCBs.</a> ( <a href="https://ncm.instructure.com/courses/155/assignments/8254">https://ncm.instructure.com/courses/155/assignments/8254</a> )

Date	Details
	 <u>SOC102-048- Give an example of a virus that is a teratogen.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8255">https://ncm.instructure.com/courses/155/assignments/8255</a>
	 <u>SOC102-049 - Describe how radiation is a teratogen.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8256">https://ncm.instructure.com/courses/155/assignments/8256</a>
	 <u>SOC102-050 - Describe what is meant by a Category D drug.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8257">https://ncm.instructure.com/courses/155/assignments/8257</a>
	 <u>SOC102-051 - Describe what is meant by a Category X drug.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8258">https://ncm.instructure.com/courses/155/assignments/8258</a>
	 <u>SOC102-052 - Describe how alpha-fetoprotein (AFP) is used as a predictor of genetic defects.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8259">https://ncm.instructure.com/courses/155/assignments/8259</a>
	 <u>SOC102-053 - Describe how amniocentesis provides an understanding of fetal genetics.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8260">https://ncm.instructure.com/courses/155/assignments/8260</a>
	 <u>SOC102-054 - Describe how chorionic villi sampling provides an understanding of risk for fetal abnormality.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8261">https://ncm.instructure.com/courses/155/assignments/8261</a>
	 <u>SOC102-055 - Briefly describe the effectiveness of using ultrasound to determine fetal genetic abnormality.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8262">https://ncm.instructure.com/courses/155/assignments/8262</a>
	 <u>SOC102-056 - Briefly describe the overall frequency of live births that result in a baby with a genetic abnormality.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8263">https://ncm.instructure.com/courses/155/assignments/8263</a>
	 <u>SOC102-057 - Briefly explain which parents are at a greater risk of having a baby with a genetic abnormality.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8264">https://ncm.instructure.com/courses/155/assignments/8264</a>
	 <u>SOC102-058 - Describe how parental age has an effect on the likelihood of a fetus with a genetic abnormality.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8265">https://ncm.instructure.com/courses/155/assignments/8265</a>
	 <u>SOC102-059 - Briefly discuss what type of screening is available for parents planning on having a child.</u> <a href="https://ncm.instructure.com/courses/155/assignments/8266">https://ncm.instructure.com/courses/155/assignments/8266</a>
	 <u>Student Evaluation of Course and Instructor</u> <a href="https://ncm.instructure.com/courses/155/assignments/8267">https://ncm.instructure.com/courses/155/assignments/8267</a>
	 <u>Updated Knowledge and Technology</u> <a href="https://ncm.instructure.com/courses/155/assignments/8288">https://ncm.instructure.com/courses/155/assignments/8288</a>