

HERBAL CONSTITUENTS 2023

Interactive Online Course with Lisa Ganora

COURSE DESCRIPTION

This live online course is designed for the intermediate-to-advanced medical herbalism student, graduated clinical herbalist, other complementary / integrative health care students and practitioners, and folks working in the herbal products industry. *Herbal Constituents* provides a comprehensive, 24-week study of the relevant principles of botanical phytochemistry; synergy and variability in herbs and formulas; polarity, solubility, and herbal extractions; the hierarchy and classification of constituents; which herbs feature which constituents; safety, toxicology and herb/drug interactions; and applications for herbal constituents in a therapeutic context.

For practitioners, this course will help you understand your herbal supplements and phytonutrients on a much deeper level. You'll learn what active constituents are, how they affect one another, and how to use them more effectively with your clients. You'll learn how to judge quality, safety, food/drug and herb/drug interactions, and important aspects of how the constituents in herbs and health-promoting foods affect human physiology on the cellular level and beyond.

Herbal Constituents focuses on herbs and their constituents from the Western *Materia Medica* and the compounds in medicinal foods. There are 24 lessons in all, with more than 20 hours of pre-recorded classroom lecture with Lisa Ganora. And the video classes are accompanied by extensive detailed and illustrated PowerPoint presentations that we'll use in our 48 hours of live, participatory webinars. (2 hours for each lesson – also recorded so students can review them later).

Written materials include independent study assignments; reading assignments from the *Herbal Constituents* textbook and handouts; and unit self-assessment quizzes with mid-term and final exams. An active forum, monitored daily, is also provided for student questions and peer-group sharing of projects and assignments. Student support is available throughout the course by dedicated faculty and staff who are available to answer your questions on curriculum and procedures.

We will meet every week (except for holidays & breaks) for the live webinars (and if you miss them, you can download the recorded versions). You'll be able to complete the other parts of the course on your own schedule, within the designated time frames for the different sections. Quizzes and exams are scheduled regularly to help keep you on track. Quizzes self-grade and you can take them as many times as you like. The Mid-Term and Final exams have a passing grade of 70% and are required if you want a Course Completion Certificate.

HERBAL CONSTITUENTS COURSE - SESSION 1: TOPICS AND DATES, 2023

Session / Week (classes open Mon, 8 am MST)	Live Webinar Dates (Thurs 6-8 pm MST)	Topics
1/1 – Mon, March 27	Mar 30, 2023	<p>Introduction to Herbal Constituents in Botanical Medicine The Colors of Vitality</p> <ul style="list-style-type: none"> ● Live Webinar: Orientation; Introduction to constituents & health – the big picture; Colors of Vitality - medicinal constituents in foods & culinary herbs; Q & A (2 hours) ● Video Lessons: Introduction to phytochemicals and herbal energetics: patterns of energy in relationship ● PowerPoint Presentation: The Colors of Vitality ● Study Guide: Week 1 ● Assignment: Evaluation of colorful antioxidant & anti-inflammatory phytochemicals in the diet ● Readings: <i>Herbal Constituents</i> textbook, A Phytochemical Folk Tale, pp. 260-263 ● Unit Quiz (to be completed before next Webinar). Quizzes auto-grade, retake as many times as needed to pass with 100%.
1/2 – Mon, Apr 3	April 6	<p>The Foundations of Phytochemistry I</p> <ul style="list-style-type: none"> ● Live Webinar: Foundations of herbal chemistry I – basics of phytochemical structure & function relevant to understanding constituents & herbal actions; Q & A (2 hours) ● Video Lessons: Foundations of herbal chemistry; Phytochemical bonding; Polarity and solubility ● PowerPoint Presentations: Descriptive phytochemistry for practitioners & educators: elements, molecules, & bonds in phytochemicals; Determinants & consequences of polarity in extractions & actions ● Study Guides: Week 2 ● Assignment: Understanding molecular representations & line drawings - what they do and don't tell us ● Readings: <i>Herbal Constituents</i> textbook, Chapter 1: The Foundations of Herbal Chemistry, pp. 2-14 ● Unit Quiz (to be completed before next Webinar)

<p>1/3 – Mon, Apr 10</p>	<p>April 13</p>	<p>The Foundations of Phytochemistry II</p> <ul style="list-style-type: none"> ● Live Webinar: Foundations of herbal chemistry II – recognizing & understanding structure & function of botanical constituents; demonstration of E-modeling; Q & A (2 hours) ● Video Lessons: Stereochemistry & isomers; Functional groups; Rings & ring systems in phytochemicals ● PowerPoint Presentations: Descriptive phytochemistry for practitioners & educators, stereochemistry & isomers; Functional groups; Rings & ring systems & how they affect naming ● Study Guides: Week 3 ● Assignment: Understanding & experimenting with E-modeling ● Readings: <i>Herbal Constituents</i> textbook, Chapter 1: The Foundations of Herbal Chemistry, pp. 14-49 ● Unit Quiz (to be completed before next Webinar)
<p>1/4 – Mon, Apr 17</p>	<p>April 20</p>	<p>Synergy & Medicinal Plant Constituents</p> <ul style="list-style-type: none"> ● Live Webinar: Origins, types & significance of synergy – how constituents work together in herbs, foods & formulas; Q & A (2 hours) ● Video Lessons: Definition & significance of synergy; Origin of synergy: co-evolutionary theory; Types of synergy 1 ● PowerPoint Presentation: Synergy in Medicinal Plants ● Study Guides: Week 4 ● Assignment: Synergy in the context of supplements & formulas: interpreting labels & comparing products ● Readings: <i>Herbal Constituents</i> textbook, Chapter 3: Synergy and Variability in Herbs and Formulas, pp. 79-84 ● Unit Quiz (to be completed before next Webinar)
<p>1/5 – Mon, Apr 24</p>	<p>April 27</p>	<p>Variability of Constituents in Botanicals</p> <ul style="list-style-type: none"> ● Live Webinar: Variability, potency, standardization – traditional & contemporary products & ways of evaluating quality; organoleptics & analyses; Q & A (2 hours) ● Video Lessons: Types of synergy 2; Synergy between constituents & pharmaceuticals; Variability 1: environmental influences & chemotypes; Variability 2: developmental factors; Standardization ● PowerPoint Presentation: Synergy and Variability ● Study Guides: Week 5 ● Assignment: Evaluating supplements for quality & composition; Standardized vs. traditional preparations ● Readings: <i>Herbal Constituents</i> textbook, Chapter 3: Synergy and Variability in Herbs and Formulas, pp. 85-94

		<ul style="list-style-type: none"> ● Unit Quiz (to be completed before next Webinar)
1/6 – Mon, May 1	May 4	Polarity, Solubility & Extraction I <ul style="list-style-type: none"> ● Live Webinar: Polarity & solubility – principles; Matrix effects; Choice of solvents & forms; Like-dissolves-like guidelines; Q & A (2 hours) ● Video Lessons: Solubility 1 & 2: Matrix effects; Influence of polarity on solubility; Non-toxic solvents for medicinal plants; Polarity of constituents & solvents ● PowerPoint Presentation: Solubility & Extraction ● Study Guides: Week 6 ● Assignment: Herbal extractions, products & pharmacy in practice ● Readings: <i>Herbal Constituents</i> textbook, Chapter 1: Polarity, pp. 13-14; Chapter 2, Solubility and Extraction of Herbal Constituents, pp. 50-56 ● Unit Quiz (to be completed before next Webinar)
1/7 – Mon, May 8	May 11	Polarity, Solubility & Extraction II <ul style="list-style-type: none"> ● Live Webinar: Water extractions – principles, calculations; Water-soluble constituents; Applications & therapeutics; Demonstration; Supercritical CO₂ extraction; other factors affecting solubility; precipitation; Q & A (2 hours) ● Video Lessons: Solubility 3, 4 & 5: Supercritical CO₂, Hydroethanolic solvents; the effects of pH, temperature, and glycoside vs. aglycone formats on extraction; Solubility demonstrations: precipitation & percolation ● PowerPoint Presentation: Solubility & Extraction ● Study Guides: Week 7 ● Assignment: Water extractions & pharmacy in practice ● Readings: <i>Herbal Constituents</i> textbook, Chapter 2, Solubility and Extraction of Herbal Constituents, pp. 56-60; Handout: <i>Herbal Pharmacy: Water Extractions</i> ● Unit Quiz (to be completed before next Webinar)
1/8 – Mon, May 15	May 18	Polarity, Solubility & Extractions III <ul style="list-style-type: none"> ● Live Webinar: Hydroethanolic extractions (tinctures) – principles; concentration & extraction ratios; maceration vs. percolation; calculations; applications; demonstration; Oil infusions & salves; Q & A (2 hours) ● Video Lesson: Solubility 6: Demonstrations: infused oils & salves ● PowerPoint Presentation: Solubility & Extraction ● Study Guides: Week 8 ● Assignment: Tinctures & oil pharmacy in practice

		<ul style="list-style-type: none"> ● Readings: <i>Herbal Constituents</i> textbook, Chapter 2: Solubility and Extraction of Herbal Constituents, pp. 60-66; Handouts: <i>Herbal Pharmacy: Hydroethanolic Extractions, Ethanol Percentages; Herbal Pharmacy: Oil Infusions & Salves</i> ● Unit Quiz (to be completed before next Webinar)
1/9 – Mon, May 22	May 25	<p>Polarity, Solubility & Extractions IV, Organization of Constituents</p> <ul style="list-style-type: none"> ● Live Webinar: Stability & reactivity; Organoleptic evaluation; Extracting Cannabis as a medicinal herb; Organization of constituents – origins (biosynthetic pathways), relationships / hierarchy / classification; Solubility of classes; Q & A (2 hours) ● Video Lessons: Major categories & subcategories of constituents; Solubility of classes ● PowerPoint Presentation: Organization of constituents - overview of group relationships & solubility; Extracting Cannabis like an Herbalist ● Study Guides: Week 9 ● Assignment: Classification & solubility of constituents in common herbal action groups (e.g., mucilaginous herbs, bitters, astringents) ● Readings: <i>Herbal Constituents</i> textbook, Chapter 2: Solubility and Extraction of Herbal Constituents, pp. 67-74 & Extracting Cannabis like an Herbalist, pp. 74-78; Chapter 4: Herbal Constituents Outline, pp. 95-112; Handouts: <i>Outline & Solubility of Constituents, Cannabis as a Medicinal Herb</i> ● Unit Quiz (to be completed before next Webinar)
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1/10 – Mon, June 12	June 15	<p>Carbohydrate Constituents & their Health Effects</p> <ul style="list-style-type: none"> ● Live Webinar: Carbohydrate constituents: organic acids, inulins, immunomodulating polysaccharides; Medicinal carbohydrates & their physiological effects; Q & A (2 hours) ● Video lessons: Carbohydrate-type constituents I - overview & first subcategories; Immunomodulating polysaccharides; Organic acids: ascorbic & oxalic acids; <i>Symplocarpus</i> & organoleptics; <i>Urtica</i> stinger fluid constituents & effects ● PowerPoint Presentations: Overview and first categories of carbohydrates: medicinal monosaccharides, disaccharides, oligosaccharides, polysaccharides; Immunomodulating polysaccharides; Organic acids (derivatives of monosaccharides) - examples & sources ● Study Guides: Week 10

		<ul style="list-style-type: none"> ● Assignment: Dietary & herbal sources of therapeutic carbohydrates; relationship to herbal actions & health effects ● Readings: <i>Herbal Constituents</i> textbook, Chapter 5: Carbohydrates in Medicinal Plants, pp. 113-130 ● Unit Quiz (to be completed before next Webinar)
1/11 – Mon, June 19	June 22	<p>Lipids & Derivatives in Foods & Herbs</p> <ul style="list-style-type: none"> ● Live Webinar: Introduction to lipids & derivatives in medicinal plants & foods; Q & A (2 hours) ● Video Lessons: Lipids 1 - fatty acids; Lipids 2: triglycerides; Lipids 3: phospholipids & beeswax; Lipids 4: alkamides & polyalkenes, polyacetylenes/polyalkynes ● PowerPoint Presentations: Fatty acids, oils & other lipids in herbs, fruits and seeds; FA, the eicosanoid cascade & inflammation; Alkamides (including isobutylamides) & polyalkenes / polyalkynes ● Assignment: Researching, evaluating & using FA from seeds, oils, & medicinal foods ● Study Guides: Week 11 ● Readings: <i>Herbal Constituents</i> textbook, Chapter 6: Lipids in Medicinal Foods and Herbs, pp. 131-51 ● Unit Quiz (to be completed before next Webinar)
1/12 – Mon, June 26	June 29	<p>Amino Acid Derivatives in Medicinal Foods & Herbs</p> <ul style="list-style-type: none"> ● Live Webinar: Overview of amino acid derivatives; Q & A (2 hours) ● Video Lessons: AA1 - introduction to amino acid-based constituents & amines; AA2 - glucosinolates; AA3 - sulfur compounds in <i>Allium</i>; AA4 - cyanogenic glycosides ● PowerPoint Presentations: Glucosinolates; Sulfur compounds in <i>Allium</i>; Cyanogenic glycosides; Amino acid derivatives in relation to other categories: alkaloids, polyphenols, pseudoalkaloids, etc.; Medicinal amines ● Study Guides: Week 12 + Mid-Term Exam ● Assignment: Organoleptic evaluation of AA derivatives ● Readings: <i>Herbal Constituents</i> textbook, Chapter 7: Amino Acids and Derivatives, pp. 152-159 <p>NO UNIT QUIZ this week ... Week 12 questions are included in the Mid-Term Exam (passing grade 70%)</p>
<p>MID-TERM EXAM – to be completed by July 31, 2023</p>		