



Course Specification

— (Bachelor)

Course Title: Drug-herb interaction
Course Code: 422 PHG-2
Program: Pharmaceutical sciences
Department: Pharmacognosy
College: Pharmacy
Institution: Najran University
Version: 1
Last Revision Date: 24 Dec. 2023



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	4
D. Students Assessment Activities	5
E. Learning Resources and Facilities	5
F. Assessment of Course Quality	5
G. Specification Approval	6

A. General information about the course:

1. Course Identification

1. Credit hours: 2h (2+0)

2. Course type

A. ☐ University ☐ College ☐ Department ☐ Track ☒ Program

B. ☐ Required ☒ Elective

3. Level/year at which this course is offered: Level 8th/4th year

4. Course General Description:

The drug-herb interaction course is intended to enable the students to acquire knowledge about the herb-conventional drug interactions and know the most common herbs show interactions with drug (prescription and/or over-the-counter). The course will highlight the basic pharmacokinetic and pharmacodynamic concepts and give several examples of the most common types of herb-drug interactions, and the unpleasant side effects which may occur. Finally, The course will also cover whether these drug-herb combinations are safe, effective, and recommended for the patients, or should be avoided.

5. Pre-requirements for this course (if any):

Biochemistry and Pharmacology I

6. Co-requisites for this course (if any):

None





7. Course Main Objective(s):

This course aims to prepare qualified graduates able to give advice and consultations to the patients and community, regarding the concomitant use of herbs with the prescribed conventional drugs. Student pass the course can answer the questions namely: Are the drugs and substances in question known to interact or is the interaction only theoretical and speculative? If they do interact, how serious is it. Has it been described many times or only once? Are all patients affected or only a few? Is it best to avoid these two substances altogether or can the interaction be accommodated in some way? And what alternative and safer drugs can be used instead? Finally, students should distinguish whether these drug-herb combinations are safe, effective, and recommended for the patients, or should be avoided.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		—
4	Distance learning		—

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	—
3.	Field	—
4.	Tutorial	—
5.	Others (Assignments and study)	—
Total		30

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			





Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.1	Demonstrate specialized knowledge in biomedical, and pharmaceutical sciences in relation to the development and use of medications including natural therapies for prevention and treatment of diseases	K1	Lectures	Written exams Assignments
2.0	Skills			
2.1	Integrate pharmaceutical and administrative sciences with the information obtained from different resources to provide accurate recommendations and creative solutions for complex problems related to patient treatment	S1	Lectures	Written exams Assignments
3.0	Values, autonomy, and responsibility			
3.1	Support patient rights to use the medication safely and effectively in various settings	V2	Lectures	Written exams Observation card

C. Course Content

No	List of Topics	Contact Hours
1.	<p>Introduction: General considerations on the interactions between herbal medicines and conventional drugs</p> <p>Herbal medicine use in specific patient groups (Cancer patients; (b) Patients on weight-loss programs; perioperative care)</p> <p>Differences in herbal use in specific population groups [(a) The elderly; (b) Children; (c) Gender; (d) Educational level and knowledge of herbal products; (e) Rural populations]</p>	2
2.	Revision on the basics of pharmacokinetics	2
3.	Revision on the basics of pharmacodynamics	2
4.	Examples of herbs that affect drug absorption	2
5.	<p>Effect of concomitant use of herbs [(Cannabis, Liquorice, and St John's wort) vs (Boswellia, Chamomile, Dandelion, Feverfew, and Ginkgo)] affecting the cytochrome P450 isoenzyme CYP1A2† during the use of the isoenzyme substrates</p> <p>(Caffeine, Clomipramine, Clozapine, Duloxetine)</p>	2



6.	Effect of concomitant use of herbs [(Cannabis, Liquorice, and St John's wort) vs (Boswellia, Chamomile, Dandelion, Feverfew, and Ginkgo)] affecting the cytochrome P450 isoenzyme CYP1A2† during the use of the isoenzyme substrates ✚ (Frovatriptan, Olanzapine, Rasagiline, Ropinirole)	2
7.	Effect of concomitant use of herbs [(Cannabis, Liquorice, and St John's wort) vs (Boswellia, Chamomile, Dandelion, Feverfew, and Ginkgo)] affecting the cytochrome P450 isoenzyme CYP1A2† during the use of the isoenzyme substrates ✚ (Tacrine, Theophylline, Tizanidine, and Zolmitriptan).	2
8.	Effect of concomitant use of herbs [(Ginkgo, Liquorice, and St John's wort) Vs (Echinacea, Bitter orange, Ginseng, Milk thistle, and Turmeric) affecting the cytochrome P450 isoenzyme CYP3A4† during the use of the isoenzyme substrates ✚ [Antiarrhythmics (Amiodarone, Disopyramide, Lidocaine oral, Propafenone, Quinidine)] ✚ Calcium-channel blockers (Diltiazem, Felodipine, Lercanidipine)	2
9.	Effect of concomitant use of herbs [(Ginkgo, Liquorice, and St John's wort) Vs (Echinacea, Bitter orange, Ginseng, Milk thistle, and Turmeric) affecting the cytochrome P450 isoenzyme CYP3A4† during the use of the isoenzyme substrates ✚ Anticholinesterases, centrally acting (Donepezil, Galantamine) ✚ Benzodiazepines and related drugs (Alprazolam, Triazolam, Midazolam; Buspirone, Zolpidem, Zopiclone)	2
10.	Effect of concomitant use of herbs [(Ginkgo, Liquorice, and St John's wort) Vs (Echinacea, Bitter orange, Ginseng, Milk thistle, and Turmeric) affecting the cytochrome P450 isoenzyme CYP3A4† during the use of the isoenzyme substrates ✚ Antihistamines (Astemizole, Terfenadine) ✚ Antimigraine drugs (Eletriptan, Ergot derivatives) ✚ Antipsychotics (Pimozide, Quetiapine)	2
11.	Effect of concomitant use of herbs [(Ginkgo, Liquorice, and St John's wort) Vs (Echinacea, Bitter orange, Ginseng, Milk thistle, and Turmeric) affecting the cytochrome P450 isoenzyme CYP3A4† during the use of the isoenzyme substrates ✚ Antineoplastics (Busulfan, Cyclophosphamide, Ifosfamide, Imatinib, Irinotecan, Tamoxifen, Taxanes, Teniposide, Toremifene, Vinblastine, Vincristine)	2
12.	Effect of concomitant use of herbs [(Ginkgo, Liquorice, and St John's wort) Vs (Echinacea, Bitter orange, Ginseng, Milk thistle, and Turmeric) affecting the cytochrome P450 isoenzyme CYP3A4† during the use of the isoenzyme substrates ✚ Corticosteroids (Budesonide, Dexamethasone, Fluticasone, Hydrocortisone, Methylprednisolone) ✚ Dopamine agonists (Bromocriptine, Cabergoline)	2
13.	Effect of concomitant use of herbs [(Ginkgo, Liquorice, and St John's wort) Vs (Echinacea, Bitter orange, Ginseng, Milk thistle, and Turmeric) affecting the cytochrome P450 isoenzyme CYP3A4† during the use of the isoenzyme substrates ✚ Hormones (Hormonal contraceptives, Oestrogens, Progestogens) ✚ Immunosuppressants (Ciclosporin, Sirolimus, Tacrolimus) ✚ Opioids (Alfentanil, Buprenorphine, Fentanyl, Methadone)	2
14.	Effect of concomitant use of herbs [(Ginkgo, Liquorice, and St John's wort) Vs (Echinacea, Bitter orange, Ginseng, Milk thistle, and Turmeric) affecting the cytochrome P450 isoenzyme CYP3A4† during the use of the isoenzyme substrates ✚ Phosphodiesterase type-5 inhibitors (Sildenafil, Tadalafil, Vardenafil)	2





	<ul style="list-style-type: none"> Protease inhibitors (Amprenavir, Atazanavir, Darunavir, Fosamprenavir, Indinavir, Nelfinavir, Ritonavir, Saquinavir, Tipranavir) Statins (Atorvastatin, Lovastatin, Simvastatin) 	
15.	Examples of herbs that affect drug elimination	2
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz-1	4 th week	5
2.	Midterm exam	8 th week	25
3.	Individual assignments	Weekly	5
4.	Quiz-2	12 th week	5
5.	Observation card	15 th week	10
6.	Final exam	17 th week	50
Total			100

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Rice, J.O., 2014. Stockley's Herbal Medicines Interactions: A Guide to the Interactions of Herbal Medicines. <i>Journal of the Medical Library Association: JMLA</i> , 102(3), p.221. https://www.klav.be/klavinfo/files/nieuwsbrieven/2012/NL/201211_02groepsaankoop_Stockley.pdf .
Supportive References	Stargrove, M. B., Treasure, J., McKee, D. L. (2008). Herb, Nutrient, and Drug Interactions: Clinical Implications and Therapeutic Strategies. Malawi: Mosby/Elsevier. Herb, Nutrient, and Drug Interactions - Google Books
Electronic Materials	Meletis, C. D., Buff, S. (2001). Instant Guide to Drug-herb Interactions . United Kingdom: Dorling Kindersley Pub. Instant Guide to Drug-herb Interactions - Google Books
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	A Suitable lecture room equipped with data show, internet, and sufficient number of seats.
Technology equipment (projector, smart board, software)	1. Computer 2. Internet access



Items	Resources
	3. Data show
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of dept. Students	Direct Indirect: questionnaire
Effectiveness of Students' assessment	Faculty Students	Direct Indirect: questionnaire
Quality of learning resources	Faculty Students	Direct Indirect: questionnaire
The extent to which CLOs have been achieved	Faculty members Students	Direct Indirect: questionnaire
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	PHARMACOGNOSY DEPARTMENT COUNCIL
REFERENCE NO.	14450612-0511-00010
DATE	25-12-2023

