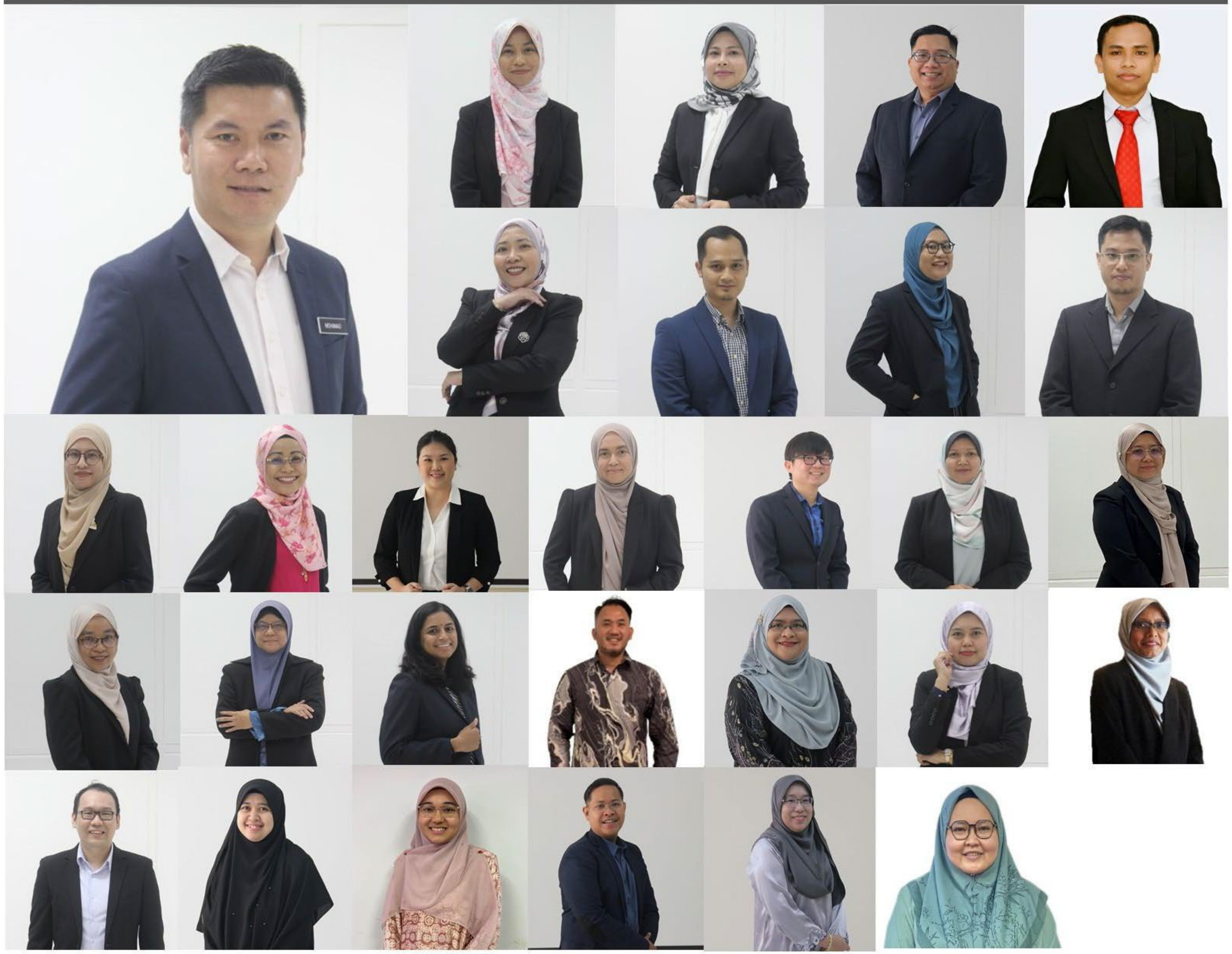
BUKU
PANDUAN PRASISWAZAH

Fakulti Farmasi

Sesi Akademik 2025-2026

PENGURUSAN FAKULTI FARMASI, UNIVERSITI KEBANGSAAN MALAYSIA



PENGURUSAN FAKULTI FARMASI, UNIVERSITI KEBANGSAAN MALAYSIA

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Timbalan Dekan (Hal Ehwal Jaringan Industri dan Masyarakat)</td>
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Prof. Madya Dr. Norsyahida Binti Mohd Fauzi **Pengerusi Pusat Kajian Pembangunan Dadah dan Herba**	Prof. Madya Dr. Farida Hanim Binti Islahudin **Pengerusi Pusat Kajian Pengurusan Berkualiti Ubat-ubatan**	Prof. Madya Dr. Ng Shiow Fern **Pengerusi Pusat Kajian Teknologi Penyampaian Dadah dan Vaksin**	Prof. Madya Dr. Noraida Binti Mohamed Shah **Ketua Program Prasiswazah**	Dr. Chua Eng Wee **Ketua Program Siswazah**	Prof. Madya Dr. Norazrina Binti Azmi **Ketua Jaringan Industri dan Komuniti**	Dr. Syaratul Dalina Yusoff **Penyelaras Program Siswazah (Penyelidikan)**
Dr. Siti Azdiah Binti Abdul Aziz **Penyelaras Program Sarjana Farmasi Klinikal**	Prof. Madya Dr. Juriyati Binti Jalil **Penyelaras Program Sarjana Sains (Analisis Farmaseutikal)**	Dr. Chandini Menon a/p Premakumar **Penyelaras Hubungan Antarabangsa**	Dr. Zainol Akbar Bin Zainal **Penyelaras Strategik dan Penarafan**	Dr. Tuan Mazlelaa Binti Tuan Mahmood **Penyelaras Alumni**	Dr. Nur Vaizura Binti Mohamad **Penyelaras Komunikasi Strategik**	Dr. Hanisah Binti Azhari **Penyelaras Hal Ehwal Pelajar**
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PANDUAN PRASISWAZAH
Fakulti Farmasi
Sesi Akademik 2025-2026

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..

Universiti Kebangsaan ini merupakan puncak dari usaha kita ke arah memenuhi tuntutan dan aspirasi rakyat yang ingin melihat bahawa bahasa ibunda mempunyai kedaulatan dan kedudukan yang sewajarnya di dalam usaha memenuhi keperibadian nasional

(Ucapan Tun Abdul Razak di Konvokesyen Pertama UKM, 1973)

LAMBANG

Universiti Kebangsaan Malaysia (UKM) ialah sebuah perisai yang berpetak empat. Setiap petak mengandungi gambar dan warna latar yang berlainan dengan membawa maksud tertentu. Gambar yang didapati dalam petak tersebut ialah seperti berikut:

- Seekor harimau berwarna kuning yang gagah sedang menyerang ke arah kanan berlatar warna merah.
- Simbol atom berlatar warna kuning.
- Simbol teknologi berlatar warna biru.
- Sekuntum bunga raya berwarna merah berlatar warna putih.

BUKU

Buku melambangkan ilmu pengetahuan, iaitu peranan utama UKM sebagai institusi pengajian tinggi dan penyelidikan.

PERISAI

Perisai bererti keteguhan. Keteguhan yang dimaksudkan ialah kemampuan UKM memainkan peranan sebagai institusi pengajian tinggi di negara ini.

HARIMAU

Harimau melambangkan keberanian dan kegagahan. Harimau mencerminkan masyarakat Malaysia yang berteraskan kebudayaan Melayu. Harimau garang menggambarkan kesediaan dan keupayaan UKM mara memerangi kejahilan, kejahatan dan kepalsuan.

ATOM DAN TEKNOLOGI

Simbol atom dan teknologi melambangkan konsep pembangunan negara yang berlandaskan sains dan teknologi moden. UKM sebagai institusi ilmu bertanggungjawab mengeluarkan tenaga mahir dalam semua bidang untuk memenuhi keperluan pembangunan negara.

BUNGA RAYA

Bunga raya adalah bunga kebangsaan Malaysia. Lima helai ranggi melambangkan lima prinsip Rukun Negara yang dihayati dan sentiasa dipelihara oleh rakyat Malaysia.

Kandungan

Kata Alu-aluan

Assalamualaikum w.b.t dan Salam Sejahtera

Saya merakamkan setinggi-tinggi tahniah dan mengucapkan Selamat Datang kepada saudara dan saudari yang berjaya melanjutkan pengajian ke Universiti Kebangsaan Malaysia (UKM) di peringkat Ijazah Sarjana Muda. UKM juga merakamkan sekalung penghargaan kepada saudara dan saudari yang telah memilih serta memberi kepercayaan kepada UKM untuk melanjutkan pengajian.

Sebagai sebahagian dari warga baharu UKM, saudara dan saudari diharap dapat menghayati aspirasi penubuhan universiti ini yang ditubuhkan hasil daripada perjuangan para pejuang bangsa yang ingin melihat bahasa Melayu dimartabatkan sebagai bahasa ilmu tinggi berasaskan acuan kebangsaan. Saya berharap saudara dan saudari sentiasa menjadi mahasiswa yang mampu menyerlahkan lagi kecemerlangan UKM diperingkat kebangsaan dan antarabangsa.

Bagi membolehkan saudara dan saudari mencipta kejayaan yang gemilang, UKM menyediakan pelbagai kemudahan dan peluang di sepanjang tempoh pengajian di UKM. Justeru, manfaatkanlah peluang yang disediakan ini untuk memperkayakan ilmu pengetahuan dan berusaha gigih untuk mengejar kejayaan dalam akademik. Saudari dan saudari juga digalakkan menyertai secara aktif dalam pelbagai aktiviti kokurikulum, kebudayaan, sukan dan sebagainya bagi memantapkan kemahiran sahsiah masing-masing.

Semoga saudara dan saudari akan terus mencapai kejayaan yang cemerlang dalam pengajian dan mempamerkan sahsiah terpuji. Saudara dan saudari juga diharap menjadi modal insan yang dapat berbakti kepada kemajuan masyarakat dan negara. Saudara dan saudari juga disaran agar sentiasa bergerak seiring dan mendokong peranan UKM sebagai pemangkin pembangunan negara dan perpaduan nasional.

Sekian.

Prof. Dr. Sufian Jusoh
Naib Canselor
Universiti Kebangsaan Malaysia

LAMPIRAN A
Kemaskini : 26 Feb. 2025

KALENDAR SESI AKADEMIK 2025/2026 - *ACADEMIC CALENDAR 2025/2026 SESSION*
UNIVERSITI KEBANGSAAN MALAYSIA

PRASISWAZAH (KAMPUS INDUK BANGI, FFAR, FSK) & SISWAZAH (KAMPUS INDUK BANGI, FFAR, FSK & FPER-kecuali Program Doktor Pakar)
UNDERGRADUATE (MAIN CAMPUS BANGI, FFAR, FSK) & POSTGRADUATE (MAIN CAMPUS BANGI, FFAR, FSK & FPER-except Master Clinical)

Fakulti/Institut/Pusat ***Faculty/Institute/Centre***	**Perkara/ *Items***	**Semester 1**		**Semester 2**		**Semester 3**	
		Tarikh/ *Dates*	**Tempoh/ *Duration***	**Tarikh/ *Dates***	**Tempoh/ *Duration***	**Tarikh/ *Dates***	**Tempoh/ *Duration***
Fakulti/*Faculty* Ekonomi dan Pengurusan/ *Economics & Management* Farmasi/ *Pharmacy* Kejuruteraan dan Alam Bina/ *Engineering & Built Environment* Pendidikan/ *Education* Perubatan/ *Medicine* Pengajian Islam/ *Islamic Studies* Sains dan Teknologi/ *Science & Technology* Sains Kesihatan/ *Health Science* Sains Sosial dan Kemanusiaan/ *Social Sciences & Humanities* Teknologi dan Sains Maklumat/ *Information Science & Technology* Undang-Undang/ *Law* **Institut/*Institute*** ATMA, IKMAS, IMEN, INBIOSIS, HADHARI, KITA, LESTARI, SERI, SELFUEL, UMBI, IPI, IIR4.0 **Pusat/*Centre*** CITRA Universiti	Pendaftaran Diri Pelajar Baharu (Pascasiswazah)/ *Registration for New Students (Postgraduate)*	19 Sept. - 5 Okt. 2025 *19th Sept. - 5th Oct. 2025*	2 minggu *2 weeks*	23 Feb. - 8 Mac 2026 *23rd Feb. - 8th March 2026*	2 minggu *2 weeks*	-	-
	Lapor Diri Pelajar Baharu dan MAW (Prasiswazah)/ *Registration for New Students & MAW (Undergraduate)*	27 Sept. - 5 Okt. 2025 *27th Sept. - 5th Oct. 2025*	1 minggu *1 week*	-	-	-	-
	Sesi Pembelajaran (Prasiswazah dan Pascasiswazah)/ *Lectures (Undergraduate and Postgraduate)*	6 Okt. - 16 Nov. 2025 *6th Oct. - 16th Nov. 2025*	6 minggu *6 weeks*	9 - 22 Mac 2026 *9th - 22nd March 2026*	2 minggu *2 weeks*	27 Julai - 13 Sept. 2026 *27th July - 13th Sept. 2026*	7 minggu *7 weeks*
	Cuti Perayaan	-	-	23 - 29 Mac 2026 *23rd - 29th March 2026*	1 minggu *1 week*		
	Sesi Pembelajaran (Prasiswazah dan Pascasiswazah)/ *Lectures (Undergraduate and Postgraduate)*	-	-	30 Mac - 3 Mei 2026 *30th March - 3rd May 2026*	5 minggu *5 weeks*		
	Cuti Pertengahan Semester/ *Mid Semester Break*	17 - 23 Nov. 2025 *17th - 23rd Nov. 2025*	1 minggu *1 week*	4 - 10 Mei 2026 *4th - 10th May 2026*	1 minggu *1 week*	-	-
	Majlis Konvokesyen UKM ke-53 *The 53rd UKM Convocation Ceremony*	22 - 28 Nov. 2025 *22nd - 28th Nov. 2025*	6 hari *6 days*	-	-	-	-
	Sesi Pembelajaran (Prasiswazah dan Pascasiswazah)/ *Lectures (Undergraduate and Postgraduate)*	24 Nov. 2025 - 18 Jan. 2026 *24th Nov. 2025 - 18th Jan. 2026*	8 minggu *8 weeks*	11 Mei - 28 Jun 2026 *11th May - 28th June 2026*	7 minggu *7 weeks*	-	-
	Minggu Ulangkaji/ *Revision Week*	19 - 25 Jan. 2026 *19th - 25th Jan. 2026*	1 minggu *1 week*	29 Jun - 5 Julai 2026 *29th June - 5th July 2026*	1 minggu *1 week*	-	-
	Peperiksaan/ *Examinations*	26 Jan. - 15 Feb. 2026 *26th Jan - 15th Feb. 2026*	3 minggu *3 weeks*	6 - 26 Julai 2026 *6th - 26th July 2026*	3 minggu *3 weeks*	14 - 20 Sept. 2026 *14th - 20th Sept. 2026*	1 minggu *1 week*
	Cuti Semester/ *Semester Break*	16 Feb. - 8 Mac 2026 *16th Feb. - 8th March 2026*	3 minggu *3 weeks*	27 Julai - 27 Sept. 2026 *20th July - 27th Sept. 2026*	9 minggu *9 weeks*	-	-

Cuti Umum Semester 1

Hari Deepavali - 20 Oktober 2025 (Isnin)
Hari Keputeraan Sultan Selangor - 11 Disember 2025 (Khamis)
Hari Krismas - 25 Disember 2025 (Khamis)
Tahun Baharu - 1 Januari 2026 (Khamis)
Hari Wilayah Persekutuan - 1 Februari 2026 (Ahad)
Hari Thaipusam - 1 Februari 2026 (Ahad)
Cuti Hari Thaipusam - 2 Februari 2026 (Isnin)
Hari Tahun Baru Cina - 17 & 18 Februari 2026 (Selasa & Rabu)
Nuzul Quran - 7 Mac 2026 (Sabtu)

Cuti Umum Semester 2 & Semester 3

Hari Raya Aidil Fitri - 21 - 22 Mac 2026 (Sabtu & Ahad)
Cuti Hari Raya Aidil Fitri - 23 Mac 2026 (Isnin)
Hari Pekerja - 1 Mei 2026 (Jumaat)
Hari Raya Aidil Adha - 27 Mei 2026 (Rabu)
Pesta Kaamatan - 30 & 31 Mei 2026 (Sabtu & Ahad)
Hari Wesak - 31 Mei 2026 (Ahad)
Hari Gawai - 1 & 2 Jun 2026 (Isnin & Selasa)
Hari Keputeraan YDP Agong - 1 Jun 2026 (Isnin)
Awal Muharam (Maal Hijrah) - 17 Jun 2026 (Rabu)
Maulidur Rasul - 25 Ogos 2026 (Selasa)
Hari Kebangsaan - 31 Ogos 2026 (Isnin)
Hari Malaysia - 16 September 2026 (Rabu)

Tertakluk kepada perubahan

Public Holidays Semester 1

Deepavali - 20th October 2025 (Monday)
Sultan of Selangor's Birthday - 11th December 2025 (Thursday)
Christmas Day - 25th December 2025 (Thursday)
New Year's Day - 1st January 2026 (Thursday)
Federal Territory Day - 1st February 2026 (Sunday)
Thaipusam Day - 1st February 2026 (Sunday)
Thaipusam Holiday - 2ndFebruary 2026 (Monday)
Chinese New Year - 17th & 18th February 2026 (Tuesday & Wednesday)
Nuzul Quran - 7th March 2026 (Saturday)

Public Holidays Semester 2 & Semester 3

Hari Raya Aidil Fitri - 21st - 22nd March 2026 (Saturday & Sunday)
Hari Raya Aidil Fitri Holiday - 23rd March 2026 (Monday)
Labour Day - 1st May 2026 (Friday)
Hari Raya Aidil Adha - 27th May 2026 (Wednesday)
Harvest Festival - 30th & 31st May 2026 (Saturday & Sunday)
Wesak Day - 31st May 2026 (Sunday)
Hari Gawai - 1st & 2nd June 2026 (Monday & Tuesday)
Birthday of Yang di-Pertuan Agong - 1st June 2026 (Monday)
Awal Muharram - 17th June 2026 (Wednesday)
Maulidur Rasul - 25th August 2026 (Tuesday)
National Day - 31st August 2026 (Monday)
Malaysia Day - 16th September 2026 (Wednesday)

Subject to changes

Nota

*Sempena perayaan Hari Deepavali yang dijangka jatuh pada 20 Oktober 2025 (Isnin) ketika minggu ke-3 semester 1, sesi pengkuliahan akan dijalankan secara hibrid bagi pelajar-pelajar beragama Hindu, tertakluk kepada kesesuaian program pengajian pelajar dan pertimbangan pihak fakulti.

**Sempena perayaan Hari Raya Aidilfitri yang dijangka jatuh pada 21-22 Mac 2026 semester 2, sesi pengkuliahan bagi minggu 1 dan minggu ke-2 akan dijalankan secara hibrid/atas talian, tertakluk kepada kesesuaian program pengajian pelajar dan pertimbangan pihak fakulti.

***Sesi pengkuliahan akan dijalankan secara hibrid/atas talian pada minggu ke-12 dan ke-13 semester 2, tertakluk kepada kesesuaian program pengajian pelajar dan pertimbangan pihak fakulti sempena perayaan/cuti umum berikut: Hari Raya Aidiladha, Pesta Keamatan, Hari Wesak, Hari Gawai dan Hari Keputeraan KDYMM Yang di-Pertuan Agong.

PIHAK BERKUASA DAN PEGAWAI PENGURUSAN UNIVERSITI KEBANGSAAN MALAYSIA TAHUN 2025

CANSELOR

Duli Yang Maha Mulia Yang di-Pertuan Besar Negeri Sembilan Darul Khusus
Tuanku Muhriz Ibni Almarhum Tuanku Munawir
D.K., D.M.N., D.K. (Perak)., D.K. (Perlis)., D.K. (Selangor)., D.K. (Kedah)., D.K. (Kelantan)., D.K. (Johor)., D.K. (Terengganu)., D.K.Y.R., P.P.T., LLB (Aberystwyth)., Hon. LLD (South Wales)., Hon. Fellow (Aberystwyth)., FRCSEd (Hon), Hon. Fellow (AFP)

PRO-CANSELOR

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YBhg. Tan Sri Datuk Rafiah Binti Salim
P.S.M., P.J.N., Hon. PhD (Queen's University Belfast)., Hon. Ph.D (UMalaya)., LL.B, LL.M (Queen's University Belfast)

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Ahli-ahli LPU

Naib Canselor
YBhg. Prof. Dr. Sufian Jusoh

Wakil Kementerian Pengajian Tinggi
YBhg. Datuk Prof. Dr. Azlinda Azman

Wakil Kementerian Kewangan
Puan Habshah Ali

Wakil Masyarakat Setempat
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Wakil Senat
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Wakil Sektor Swasta
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Wakil Sektor Swasta
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Wakil Sektor Swasta
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Wakil Alumni UKM
YBhg. Dato' Yeow Wah Chin

Wakil Berpengetahuan dan Berpengalaman
YBhg. Prof. Dr. Mohamad Tajuddin Haji Mohamad Rasdi

AHLI EX-OFFICIO

Timbalan Naib Canselor Hal Ehwal Akademik dan Antarabangsa
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Timbalan Naib Canselor Hal Ehwal Penyelidikan dan Inovasi
YBhg. Prof. Dr. Jamia Azdina Jamal
Menjalankan Fungsi

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Menjalankan Fungsi

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YBhg. Prof. Ts. Dr. Faizal Mohammad
Menjalankan Fungsi

Bendahari
Encik Mohd Azli bin Mohd Kasirun

Ketua Pustakawan
Encik Hazmir Hj. Zainal

Penasihat Undang-Undang
Puan Hazlina Mohd Khalid

Setiausaha
Pendaftar

PEGAWAI PENGURUSAN UTAMA

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Menjalankan Fungsi

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Menjalankan Fungsi

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Menjalankan Fungsi

Pendaftar
Tuan Haji Zanudin bin Mohd Daud
DPT, ANS, PJK, SmSn (Kep) (UKMalaysia)

Bendahari
Encik Mohd Azli Mohd Kasirun C.A (M)
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Penasihat Undang-Undang
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LL.B (Hons) UIAM, Advocate & Solicitor

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Pejabat Pengurusan Risiko, Kelestarian dan Kesihatan Perkerjaan (ROSH-UKM)
YBhg. Prof. Ts. Dr. Kadir Arifin
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Prasarana UKM
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BEng (Hons) Civil (UiTM)., Postgrad. Dip. in Sc. (ITM)

DEKAN / PENGARAH
FAKULTI / INSTITUT / PUSAT

Fakulti Kejuruteraan dan Alam Bina
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B.Eng. (UKMalaysia)., S.Sn (UKMalaysia)., Ph.D (UKMalaysia)

Fakulti Pendidikan
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DNS., Sijil Perg. (MPIP)., SmPeng. Melayu (Sosio-Budaya) (UM)., Spend (Sosiologi Pendidikan) (UKMalaysia)., Ph.D (Uni of Dundee, UK)

Fakulti Perubatan
YBhg. Prof. Datin Dr. Marina Mat Baki
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Fakulti Pergigian
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SmSn (Kep) Kimia (UKMalaysia)., Ph.D (Univ. of Manchester & Umist, UK)

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B.A. (U.Texas-Austin), M.Econ. (UKM), Ph.D (UNSW)

Fakulti Pengajian Islam
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Dip. Syariah & Bahasa Arab (Damascus), B.A. (Hons.)(al-Azhar), S.P.I., Dok. Fal. (UKMalaysia)

Fakulti Farmasi
YBhg. Prof. Dr. Mohd Makmor Bakry
RPh, Dip. (Lab.Tech) (USM), BPharm (Hons) (UKM), MPharm (Clin) (USM), Ph.D (Medicine & Therapeutics) (Glasgow University)

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Falsafah, Wawasan, Misi dan Matlamat UKM

Falsafah

Paduan antara iman kepada Allah dengan ilmu yang bermanfaat serta gabungan antara teori dengan amal adalah dasar utama bagi perkembangan ilmu, proses pembinaan masyarakat terpelajar dan pembangunan Universiti.

Wawasan

UKM bertekad menjadi Universiti terkehadapan yang mendahului langkah masyarakat dan zamannya bagi membentuk masyarakat dinamis, berilmu dan berakhlak mulia.

Misi

Menjadi Universiti terpilih yang memartabatkan bahasa Melayu serta mensejagatkan ilmu beracuan budaya kebangsaan.

Matlamat

Untuk menjadi pusat keilmuan yang terkehadapan, berteknologi dan berdaya saing yang memartabatkan bahasa Melayu sebagai pusat bahasa ilmu, membangun masyarakat dinamis dan berakhlak mulia, mengantarabangsakan citra dan sumbangan UKM bagi masyarakat sejagat, menjana teknologi yang bermanfaat kepada masyarakat.

IMBASAN SEJARAH UNIVERSITI KEBANGSAAN MALAYSIA

Cetusan pertama gagasan perlunya pendidikan tinggi untuk orang Melayu muncul dalam Mesyuarat Majlis Raja- raja pada tahun 1903. Za'ba, seorang cendekiawan, menulis berkenaan gagasan tersebut dalam akhbar Lembaga Melayu pada tahun 1917. Gerakan pemikiran, perdebatan serta tekad golongan cendekiawan Melayu untuk menubuhkan sebuah universiti dan menggunakan Bahasa Melayu sebagai bahasa pengantar di institusi pengajian tinggi bermula pada tahun 1923 apabila Abdul Kadir Adabi, seorang lagi cendekiawan Melayu mengemukakan memorandum gagasan tersebut kepada DYMM Sultan Kelantan. Namun demikian, pemikiran dan tekad tersebut tidak dapat berkembang dan terlaksana kerana wujudnya pelbagai halangan dan rintangan oleh tekanan kolonialisme.

Mulai tahun 1957 hingga 1967, perjuangan untuk penubuhan universiti kebangsaan menjadi semakin bersemarak sebagai memenuhi tuntutan dan semangat kemerdekaan bangsa dan negara. Sehubungan itu, pada 1968 cendekiawan Melayu telah membentuk sebuah jawatankuasa penaja yang berperanan merancang penubuhan sebuah universiti kebangsaan. Pelbagai forum budaya dan politik diadakan bagi mendapat sokongan kerajaan dan rakyat untuk mewujudkan sebuah institusi pengajian tinggi yang memartabatkan Bahasa Melayu sebagai bahasa pengantar dalam semua bidang pangajian dan keilmuan. Perjuangan yang tidak pernah luput itu mencapai kejayaan dengan penubuhan Universiti Kebangsaan Malaysia (UKM) pada 18 Mei 1970 yang memulakan operasi pertamanya di Lembah Pantai Kuala Lumpur. Kumpulan pertama pelajar prasiswazah seramai 192 orang dan dua (2) orang pascasiswazah mula mendaftar di tiga (3) buah fakulti iaitu Fakulti Sains, Fakulti Sastera dan Fakulti Pengajian Islam.

Pada tahun 1974, UKM menubuhkan UKM Kampus Sabah di Kebun Kawang, Papar. Nama Kebun Kawang kemudiannya ditukar kepada Limauan oleh Tun Datu Mustapha Datu Harun yang ketika itu sebagai Ketua Menteri Sabah. Kampus yang menempatkan Fakulti Sains dan Sumber Alam ini berpindah ke Bukit Padang, Kota Kinabalu pada tahun 1980. Seterusnya berpindah ke Menggatal, Tuaran pada tahun 1990 bersama Fakulti Sains Pembangunan yang asalnya ditempatkan di Kampus Induk Bangi. Dengan penubuhan Universiti Malaysia Sabah pada tahun 1994, UKM Kampus Sabah ditutup secara rasminya pada tahun 1996 dan kedua-dua fakulti berkenaan dipindahkan ke Kampus Induk Bangi, Selangor.

Sejak 53 tahun penubuhannya, UKM telah menghasilkan 229,452 graduan. Universiti ini terus berkembang pesat sebagai sebuah universiti awam terkehadapan yang kini mempunyai 14 fakulti dan 13 institut penyelidikan. UKM juga mempunyai entiti yang beroperasi secara komersil, iaitu UKM Holdings Sdn. Bhd. sebagai satu pendekatan dalam mengkomersilkan dan memasyarakatkan kepakaran yang dimiliki di samping menjana kewangan Universiti.

Kampus induk UKM di Bangi yang memulakan operasinya pada tahun 1977 mempunyai keluasan 1,096.29 hektar. Kampus Induk Bangi menempatkan sepuluh (10) fakulti, dan duabelas (12) institut penyelidikan. Manakala Kampus Kuala Lumpur UKM yang terletak di Jalan Raja Muda Abdul Aziz, Kuala Lumpur menempatkan Fakulti Sains Kesihatan, Fakulti Pergigian dan Fakulti Farmasi dengan keluasan 20 hektar. Kampus Kuala Lumpur UKM yang terletak di Cheras dengan keluasan 22.3 hektar menempatkan Fakulti Perubatan, Hospital Canselor Tuanku Muhriz (HCTM), Hospital Tunku Ampuan Besar Tuanku Aishah Rohani, Hospital Pakar Kanak-Kanak UKM (HPKK) dan Institut Biologi Molekul Perubatan (UMBI).

Berasaskan kecemerlangan dalam bidang penyelidikan lebih empat dekad, UKM dipilih sebagai salah sebuah universiti penyelidikan di Malaysia pada tahun 2006. UKM juga adalah penerima Anugerah Kualiti Perdana Menteri 2006, memperoleh status SwaAkreditasi pada 2010 dan diberikan status Universiti Autonomi pada Januari 2012. Penganugerahan ini adalah pengiktirafan bagi kecemerlangan UKM dalam bidang akademik dan tadbir urus.

Sebagai panduan kepada seluruh warga universiti untuk meningkatkan universiti watan ini, lima nilai utama telah dijadikan sebagai lembayung dan kerangka bagi UKM dan ia dikenali sebagai TERAS. TERAS ini terdiri daripada Bakat (Talent), Etika (Ethics), Memperkasa (Revitalise), Tangkas (Agile) dan Jiwa (Soul). Ia bertujuan untuk membolehkan warga UKM membuat rujukan dan panduan terhadap hala tuju universiti dalam usaha meningkatkan pencapaian ke tahap yang tertinggi.

Bagi menyokong nilai TERAS, UKM telah membangunkan 5 Bitara TERAS, iaitu Watan, i-Minda, Holistik, Digital dan Prihatin. Lembayung TERAS dan Bitara inilah yang sewajarnya menjadi nadi dan nafas untuk universiti bergerak ke hadapan dan melangkah jauh. Ia juga perlu difahami dan dihayati serta diterapkan dalam aspek pengembangan akademik, kecemerlangan penyelidikan, pembangunan pelajar dan pemerkasaan jaringan antarabangsa serta khidmat komuniti.

Bagi memastikan roh perjuangan para pelopor UKM terus subur dan segar, kesedaran terhadap sejarah penubuhan dibugar secara berterusan. Menginsafi bahawa UKM adalah institusi harapan masyarakat, seluruh warga universiti sama ada warga kerja mahupun pelajar diimbau supaya menyelami dan memahami keperluan rakyat menerusi persoalan yang berlegar dalam kehidupan bernegara. Namun ini tidak menghadkan jangkauan universiti terhadap segenap perkembangan malah pergolakan yang berlaku di peringkat antarabangsa. Universiti yang memiliki pelbagai kepakaran merentas disiplin diyakini berupaya melangkaui garis psikologikal yang membolehkannya beraksi tangkas dalam arena global serta samasama memberi penyelesaian permasalahan yang menghambat kehidupan sejagat.

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Nor Syafinaz binti Yaakob, BSc (Melbourne), Hons Deg PharmSc (Monash) PhD (Monash)
Nur Vaizura binti Mohamad, BSc (Hons)(UKM), Msc (UKM), PhD (UKM)
Nurul Ain binti Mohd Tahir, RPh, BPharm (Hons) (UKM), PhD (Uni, of Newcastle)
Shamin bin Mohd Saffian, RPh, BPharm (Otago), PgCertPharm (Otago), PhD (Otago)
Siti Azdiah binti Abdul Aziz, RPh, BSc(Pharm)(Hons)(Canada), MPharm.Clin. (UKM), PhD (UM)
Syaratul Dalina binti Yusoff, BSBM (Hons) (UIAM), MPharmSc (Tasmania), PhD (Birmingham)
Tuan Mazlelaa binti Tuan Mahmood, RPh, BPharm (Hons) (UKM), PhD (Belfast)
Zainol Akbar bin Zainal, RPh, BSc (Pharm) (Hons) (Canada), MPharm.Clin. (UKM), PhD (Clinical Pharmacy) (USM)
AKM Moyeenul Huq, BSc (Pharm)(Hons)(Bangladesh), Msc (PharmTech)(Bangladesh) ,PhD(UKM)

Sejarah Penubuhan (*History of Establishment*) Fakulti Farmasi (*Faculty of Pharmacy*)

Fakulti Farmasi, UKM Kampus Kuala Lumpur mempunyai sejarahnya yang tersendiri. Pada peringkat awal penubuhannya, ia dikenali sebagai Jabatan Farmasi dan beroperasi di bawah Fakulti Sains Kesihatan Bersekutu (FSKB), UKM. Jabatan ini ditubuhkan pada 1994 dengan tujuan memenuhi keperluan industri farmaseutikal dan menampung kekurangan bilangan profesional dalam sains farmaseutikal khususnya ahli farmasi. Seramai 21 orang pelajar menjadi kohort pertama dan memulakan pengajian mereka pada sesi akademik 1995-1996 di bawah program Sarjanamuda Farmasi dengan Kepujian.

Lokasi asal Jabatan Farmasi terletak di Jalan Temerloh, Kuala Lumpur sebelum berpindah ke Kampus Kuala Lumpur di Jalan Raja Muda Abdul Aziz pada 1998. Sepanjang tempoh berdiri sebagai sebuah jabatan di FKSB, beberapa program pengajian telah ditawarkan seperti Ijazah Sarjana Muda Farmasi dengan Kepujian, Sarjana Farmasi Klinikal, Sarjana Sains Kesihatan dan Doktor Falsafah. Hal ini membuktikan bahawa jabatan ini berkembang dengan mantap, dan graduannya dikatakan antara yang terhebat di negara ini. Melihat kematangan dan kemampuan Jabatan Farmasi yang semakin ke hadapan, selain status program farmasi sebagai sebuah program profesional, UKM mengambil keputusan untuk menaik taraf jabatan ini kepada sebuah fakulti.

Dengan rasminya, Fakulti Farmasi, UKM, ditubuhkan pada 1 Jun 2008. Dengan tertubuhnya sebuah fakulti, Fakulti Farmasi bersedia untuk memenuhi keperluan negara iaitu melahirkan ahli farmasi yang kompetetif, berkualiti dan profesional untuk berkhidmat di sektor awam dan swasta. Kerjaya farmasi merupakan kerjaya yang dianggap kritikal oleh Kementerian Kesihatan Malaysia dan Kementerian Pengajian Tinggi. Fakulti Farmasi bukan sahaja terlibat dalam pengajaran dan pembelajaran tetapi juga dalam penyelidikan, perkhidmatan farmasi dan perundingan serta bekerja rapat dengan fakulti/ institusi yang lain dalam bidang kesihatan. Ketika ini, Fakulti Farmasi menjalankan semua aktiviti utamanya di Kampus Kuala Lumpur (Blok B dan Blok P) dan di Pusat Perubatan Universiti Kebangsaan Malaysia (PPUKM) yang terletak di Bandar Tun Razak, Cheras.

Visi Fakulti (*Faculty's Vision*)

Menerajui pendidikan, penyelidikan, dan perkhidmatan farmasi yang inovatif dan dinamik untuk kesejahteraan insan.

Leading innovative and dynamic pharmacy education, research, and services for the well-being of humanity.

Misi Fakulti (*Faculty's Mision*)

Melahirkan graduan yang holistik dan tersedia masa hadapan melalui pendidikan transformatif, beracuan kebangsaan dan penyelidikan berimpak.

Producing holistic and future-ready graduates through transformative education, national aspiration and impactful research.

Slogan Fakulti (*Faculty's Slogan*)

Ilmu, Mutu dan Budi.

Knowledge, Quality and Virtue.

Program Pengajian Prasiswazah
Fakulti Farmasi

Program Sarjana Muda Farmasi dengan Kepujian

Pengendalian kursus bagi program ini dikendalikan sepenuhnya oleh Jabatan yang terlibat. Pelajar farmasi perlu mengikuti kursus yang telah ditetapkan seperti berikut:

a. Kursus Wajib Universiti
b. Kursus Teras
c. Kursus Elektif

Kursus Wajib Universiti

Fakulti Farmasi telah menetapkan para pelajar perlu mengambil dan lulus 22 unit kursus Pendidikan Citra sebagaimana yang ditetapkan oleh Senat (10 unit kursus Citra Wajib dan 12 unit kursus Citra Rentas mengikut domain C1-C6).

1. Kursus Pendidikan Citra terbahagi kepada dua (2) komponen dan tertakluk kepada perubahan daripada Citra UKM iaitu:

   1.1. Citra Wajib - taraf kursus adalah CW dan kursus ini ditawarkan oleh Citra UKM. Pelajar perlu lulus dan melengkapkan 10 kredit. Kursus Citra Wajib adalah seperti berikut:

   Bagi pelajar Warganegara

   LMCW1022 – Asas Keusahawanan & Inovasi
   LMCW2152 – Integriti dan Antirasuah
   LMCW2143 – Falsafah dan Isu Semasa
   LMCW2153 – Penghayatan Etika dan Peradaban

   Bagi pelajar Bukan Warganegara

   LMCW1022 – Asas Keusahawanan & Inovasi
   LMCW2193 – Bahasa Melayu Komunikasi 2
   LMCW2152 – Integriti dan Antirasuah
   LMCW2143 – Falsafah dan Isu Semasa ATAU
   LMCW2153 – Penghayatan Etika dan Peradaban

1.2. Citra Rentas mengikut domain – taraf kursus adalah C1, C2, C3, C4, C5 dan C6 mengikut Domain Citra. Kursus ini ditawarkan oleh CITRA UKM dan Fakulti. Pelajar perlu lulus dan melengkapkan 12 unit untuk kursus berkod LMXX yang ditawarkan oleh Pusat Citra Universiti.

2. Senarai kursus Citra Rentas yang ditawarkan berdasarkan Domain Citra (C1-C6) adalah seperti yang disenaraikan dalam buku panduan kursus Citra yang diterbitkan oleh CITRA UKM.

Kursus Teras Fakulti (TF)

Fakulti Farmasi hanya menetapkan tiga (3)/ dua (2)* kursus sebagai kursus Teras Fakulti yang membawa nilai unit sebanyak lima (5) unit iaitu :

Tahap MUET	Kursus Bahasa Inggeris	Jumlah Kredit
5&6	LMCE 1082 Page to Stage LMCE 2103 Advanced Communication Project	5 kredit
4	LMCE 1072 Academic Literacy LMCE 2092 Speak to Persuade LMCE 3071 Professional Communication	5 kredit
3	LMCE 1062 Academic Interactions LMCE 2082 Pro-Talk English LMCE 3061 Corporate Storytelling	5 kredit

*Pemilihan kursus adalah berdasarkan keputusan MUET pelajar. Kesemua kursus ini diambil kira sebagai 5 unit kursus Teras Fakulti.

Kursus Teras Program (TP)

Fakulti Farmasi telah menetapkan kursus pengkhususan program menjurus kepada bidang farmasi.

Jadual Jumlah Unit untuk Kursus bagi Program Sarjana Muda Farmasi dengan Kepujian.

Komponen		Unit
Wajib Universiti (WU)	Citra Wajib (CW)	10
	Citra Rentas (C1-C6) (CR)	12
Teras (TR)	Teras Fakulti (TF) Kursus Bahasa Inggeris	5
	Teras Program (TP)	102
	Tesis Disertasi/ Projek Akhir/ Kertas Projek Ilmiah (TK)	6
	Latihan Industri (LI)	3
Elektif (EF)	Elektif Bidang Pengkhususan (EP)	4
	Keseluruhan	**142**

Sarjana Muda Farmasi dengan Kepujian

Pengenalan

Program Sarjana Muda Farmasi dengan Kepujian yang ditawarkan oleh Fakulti Farmasi, Universiti Kebangsaan Malaysia bertujuan melatih secara sepenuh masa bakal profesional kesihatan yang bergelar ahli farmasi.

Ahli farmasi perlu mendapat pendidikan dan kemahiran saintifik di peringkat ijazah sebelum boleh berdaftar dengan Lembaga Farmasi Malaysia. Ahli farmasi berdaftar melayakkan beliau untuk mengendali agen terapeutik dan ubat terkawal semasa dalam proses pembuatan, pemasaran, pengedaran, penyimpanan, pengawalan, pentadbiran dan penggunaan dalam rawatan penyakit.

Dalam program ini, pelajar akan diterapkan pelbagai aspek pengajian berkaitan bidang kimia farmaseutikal, farmaseutik, farmakologi, amalan farmasi dan farmasi klinikal. Pelajar juga akan diberi pendedahan kepada kemahiran amalan di farmasi komuniti, penjagaan farmaseutikal di hospital dan industri farmaseutikal. Selain itu, program ini menitikberatkan latihan profesional sebagai teras kepada pembinaan kumpulan ikhtisas yang berperwatakan, cekap dan berhemah tinggi.

Objektif

Melahirkan graduan yang dapat menghayati asas penyakit serta pendekatan terapi dalam usaha untuk meningkatkan tahap kecemerlangan perkhidmatan farmasi sebagai salah satu komponen bersepadu perkhidmatan kesihatan untuk masyarakat. Graduan juga mempunyai etika murni dan tanggungjawab profesional demi untuk memenuhi tuntutan agama dan aspirasi negara.

Komponen Kurikulum dan Jumlah Unit

PProgram ini mengambil masa pengajian selama empat (4) tahun. Jumlah keseluruhan unit yang perlu diambil untuk tujuan pengijazahan ialah 142 unit yang merangkumi 10 unit kursus Citra Wajib (CW), 16 unit kursus elektif yang merangkumi kursus Citra Rentas (CR, 12 unit) yang ditawarkan oleh Pusat Citra Universiti mengikut domain C1-C6 dan Elektif Bidang Pengkhususan (EP, 4 unit). Lima (5) unit kursus Teras Fakulti (TF) (kursus Bahasa Inggeris), 102 unit kursus Teras Program (TP), 6 unit Tesis Disertasi (TK) dan 3 unit Latihan Industri (LI). Setelah memenuhi semua syarat pengajian, pelajar akan dianugerahkan Ijazah Sarjana Muda Farmasi dengan Kepujian [SMFar (Kep)].

OBJEKTIF PENDIDIKAN PROGRAM (OPP) PROGRAM SARJANA MUDA FARMASI DENGAN KEPUJIAN

Program Sarjana Muda Farmasi dengan Kepujian mempunyai Objektif Pendidikan Program yang berikut:

OPP1: Ahli Farmasi yang mempunyai pengetahuan, pemahaman dan kemahiran kognitif, praktikal, digital dan numerikal untuk menyelesaikan masalah dalam bidang farmasi.

OPP2: Ahli Farmasi yang memiliki kemahiran interpersonal, komunikasi berkesan serta ciri-ciri kepimpinan, autonomi dan kebertanggungjawaban.

OPP3: Ahli Farmasi yang mempunyai kemahiran personal dan mempunyai minda keusahawanan dalam menyelesaikan masalah berkaitan bidang farmasi.

OPP4: Ahli Farmasi yang bersikap profesional, berintegriti dan mematuhi nilai-nilai moral etika dalam profesion bidang farmasi.

HASIL PEMBELAJARAN PROGRAM (HPP)
PROGRAM SARJANA MUDA FARMASI DENGAN KEPUJIAN

Program Ijazah Sarjana Muda Farmasi dengan Kepujian, Fakulti Farmasi bertujuan melahirkan graduan yang berupaya untuk :

HPP1:	Menunjukkan penguasaan pengetahuan dan kefahaman lanjutan berkaitan bidang farmasi secara komprehensif.
HPP2:	Mengaplikasi pengetahuan secara kritikal dalam penyelesaian isu berkaitan bidang farmasi.
HPP3:	Menunjukkan kemahiran praktikal dalam membuat penilaian dan aplikasi teknik berkaitan bidang farmasi.
HPP4:	Mempamerkan kemahiran berkolaborasi secara berkesan dengan pelbagai pihak.
HPP5:	Menunjukkan kemahiran berkomunikasi secara lisan dan bukan lisan dengan berkesan dalam bidang farmasi.
HPP6:	Mengaplikasi teknologi digital yang bersesuaian dalam pelaksanaan tugasan berkaitan bidang farmasi.
HPP7:	Mentafsir data numerikal, kualitatif dan grafik dalam penyelesaian masalah berkaitan bidang farmasi.
HPP8:	Menunjukkan sikap autonomi, kepimpinan dan kebertanggungjawaban dalam pelaksanaan tugasan berkaitan bidang farmasi.
HPP9:	Menunjukkan kemahiran personal dan keupayaan pembelajaran sepanjang hayat dalam perkembangan profesion farmasi.
HPP10:	Mempamerkan kreativiti, inovasi dan kemahiran keusahawanan dalam projek berkaitan bidang farmasi.
HPP11:	Mempamerkan etika dan profesionalisme dalam penyelesaian isu kompleks berkaitan bidang farmasi.

HPP1	: Pengetahuan dan pemahaman
HPP2	: Kemahiran kognitif
HPP3	: Kemahiran praktikal
HPP4	: Kemahiran interpersonal
HPP5	: Kemahiran komunikasi
HPP6	: Kemahiran digital
HPP7	: Kemahiran numerasi
HPP8	: Kepimpinan, autonomi dan kebertanggungjawaban
HPP9	: Kemahiran peribadi
HPP10	: Kemahiran keusahawanan
HPP11	: Etika & profesionalisme

Senarai Kursus
Program Sarjana Muda Farmasi dengan Kepujian

Peringkat 1000

Semester I

NFNF1612	Asas Saintifik Penyakit
NFNF1613	Biokimia Manusia
NFNF1713	Sains Formulasi
NFNF1813	Kimia Dadah
NFNF1912	Pengenalan kepada Profesyen Farmasi
LMCE1062/	*Academic Interactions/*
LMCE1072/	*Academic Literacy/*
LMCE1082*	*Page to Stage*
NFNFXXX2$^{\pm}$	Kursus Elektif
LMCXXX2$^{\pm}$	Kursus Citra Rentas

Semester II

NFNF1622	Mikrobiologi
NFNF1623	Farmakologi dan Toksikologi Asas
NFNF1722	Rekabentuk dan Pembangunan Dos I
NFNF1822	Rekabentuk dan Pembangunan Dadah
NFNF1922	Komunikasi Profesional dan Pendidikan Pesakit
LMCW1022	Asas Keusahawanan dan Inovasi
LMCE2082/	*Pro Talk English/*

LMCE2092/	*Speak to Persuade/*
LMCE2103*	*Advanced Communication Project*
NFNFXXX2/	
LMCXXXX±	Kursus Elektif/Kursus Citra Rentas
LMCXXXX2	Kursus Citra Rentas

Peringkat 2000

Semester I

NFNF2612	Imunologi
NFNF2632	Farmakologi Sistem Saraf Periferi
NFNF2652	Farmakoterapi Gangguan Endokrin dan Autakoid
NFNF2712	Rekabentuk dan Pembangunan Dos II
NFNF2813	Kaedah Farmakopia Untuk Analisis Dadah
NFNF2912	Pendekatan kepada Farmasi Klinikal
NFNF2932	Perubatan Tradisional dan Komplementari
LMCW2143	Falsafah dan Isu Semasa
LMCXXXX2	Kursus Citra Rentas

Semester II

NFNF2622	Farmakoterapi Gangguan Renal dan Genitourinari
NFNF2623	Farmakoterapi Jangkitan, Infestasi dan Gangguan Imun
NFNF2722	Rekabentuk dan Pembangunan Dos III
NFNF2823	Teknik Spektroskopi Untuk Analisis Dadah
NFNF2922	Perundangan, Etika dan Polisi dalam Farmasi
LMCW2152	Integriti dan Antirasuah
LMCW2153	Penghayatan Etika dan Peradaban
NFNFXXX2/	
LMCXXXX2±	Kursus Elektif/Kursus Citra Rentas

Peringkat 3000

Semester I

NFNF3612	Farmakoterapi Gangguan Sistem Saraf Pusat
NFNF3613	Farmakoterapi Gangguan Kardiovaskular dan Respiratori
NFNF3632	Statistik dan Kaedah Penyelidikan
NFNF3812	Jaminan Kualiti Farmaseutikal
NFNF3912	Amalan Farmasi Komuniti
NFNF3913	Perkhidmatan Farmasi Khusus I

NFNF3932 Penjagaan Farmaseutikal Populasi Khusus
NFNFXXX2/
LMCXXXX2± Kursus Elektif/Kursus Citra Rentas

Semester II
NFNF3182 Projek Penyelidikan I
NFNF3622 Farmakoterapi Gangguan Gastrousus
NFNF3642 Farmakoterapi Gangguan Muskuloskeletal dan Integumen
NFNF3662 Farmakoterapi Onkologi dan Gangguan Hematologi
NFNF3722 Bioteknologi Farmaseutikal dan Radiofarmaseutikal
NFNF3922 Farmakoepidemiologi dan Farmakoekonomik
NFNF3923 Perkhidmatan Farmasi Khusus II
LMCE3061/ *Corporate Storytelling/*
LMCE3071* *Professional Communication*
NFNFXXX2/
LMCXXXX± Kursus Elektif/ Kursus Citra Rentas

Peringkat 4000

Semester I
NFNF4134 Projek Penyelidikan II
NFNF4712 Farmasi Industri
NFNF4812 Jaminan Kualiti Ubat Herba
NFNF4912 Farmasi Kesihatan Umum
NFNF4916 Klerksyip Perkhidmatan Farmasi Khusus

Semester II
NFNF4143 Latihan Industri Farmaseutikal
NFNF4925 Klerksyip Pengurusan Ubat dan Farmasi Komuniti
NFNF4945 Klerksyip Farmasi Klinikal dan Farmakoterapeutik

*Mengikut keperluan band MUET yang ditetapkan
± 12 kredit pilihan kursus citra rentas, 4 kredit pilihan kursus elektif bidang pengkhususan

Kursus Elektif

Sebagai salah satu usaha untuk memastikan pelajar mendapat pendidikan yang menyediakan mereka ke alam pekerjaan, kursus elektif mengikut trek telah diperkenalkan. Pelajar digalakkan untuk mengambil kursus elektif mengikut trek tertentu bergantung kepada kecenderungan masing-masing dalam tiga bidang yang berkaitan farmasi iaitu 1) Farmasi Sosial dan Kemanusiaan, 2) Farmasi Komuniti, dan 3) Industri dan Penyelidikan Farmasi. Panduan pemilihan kursus elektif mengikut trek adalah seperti di bawah:

Farmasi Sosial dan Kemanusiaan			
No.	**Kod Kursus**	**Nama Kursus**	**Semester**
1.	NFNF1512	Farmasi dan Kelestarian Alam Sekitar	1
2.	NFNF1522	Kemahiran Berorganisasi dan Kebajikan Masyarakat dalam Farmasi	1
3.	NFNF3512	Penyalahgunaan dan Penagihan Dadah	1
4.	NFNF2582	Dadah dalam Sukan	1
5.	NFNF3562	Farmasi untuk Masyarakat	2
6.	NFNF2512	Farmasi Veterinar	1
Farmasi Komuniti			
No.	**Kod Kursus**	**Nama Kursus**	**Semester**
1.	CMIE1213	Pembangunan Perusahaan Mikro dan Kecil	1
2.	CMIE2313	Keusahawanan Sosial dan Inovasi	1
3.	CMIE3013	Inovasi Produk dan Keusahawanan I	1
4.	CMIE2123	Teknousahawan	2
5.	CMIE1423	Pemasaran Digital	2
6.	CMIE3023	Inovasi Produk dan Keusahawanan II	2

7.	NFNF4532	Pemakanan dalam Amalan Farmasi Komuniti	2
8.	NFNF4522	Pengurusan Perniagaan Farmasi	2
Industri dan Penyelidikan Farmasi			
No.	**Kod Kursus**	**Nama Kursus**	**Semester**
1.	NFNF1562	Sains Kosmetik	2
2.	NFNF4522	Pengurusan Perniagaan Farmasi	2

***Pendaftaran kursus Citra Universiti dan CESMED tertakluk kepada perubahan dari CITRA UKM/CESMED.**

PERHATIAN:

1. Pelajar perlu melengkapkan minimum <u>16 unit Kursus Elektif</u> yang terdiri dari 12 unit citra rentas domain C1-C6 dan 4 unit Elektif Bidang Pengkhususan (EP) (sepanjang pengajian). Pelajar dibenarkan untuk mengambil Kursus Elektif seawal peringkat 1000.

2. Pelajar masih lagi dibenarkan untuk mendaftar kursus elektif tanpa mengikut trek tertentu. Walau bagaimanapun, pendaftaran kursus elektif perlu mengikut semester (semester 1 atau 2) yang telah ditetapkan.

Sinopsis Kursus
Program Sarjana Muda Farmasi dengan Kepujian

NFNF1612 Asas Saintifik Penyakit

Kursus ini meliputi pengenalan kepada proses asas patologi dan konsep umum penyakit. Penekanan terhadap pengetahuan istilah patologi, penyebab penyakit, patogenesis perubahan struktur dan fungsi, evolusi dan akibat penyakit pada manusia akan dititikberatkan. Penekanan kursus ini meliputi patologi asas akibat kecederaan sel, proses inflamasi, gangguan sirkulasi, degenerasi dan ketaknormalan pertumbuhan sel. Perbincangan mengenai hubungkait pelbagai faktor dalaman dan luaran dengan pelbagai ketaknormalan sel, tisu dan organ akan turut didedahkan kepada para pelajar.

Bacaan Asas

Cross, S. 2019. Underwood's Pathology: A Clinical Approach. 7th ed. Elsevier.
Damjanov, I. 2022. Pathology for the Health Professions. Ed. ke-11. Elsevier.
Greene, R.J. & Harris, N.D. 2008. Pathology and Therapeutics for Pharmacists- A Basics for Clinical Pharmacy Practice, 3rd ed. Pharmaceutical Press.
Kumar, V., Cotran, R.S., Abbas, A.K. & Aste, J.C. 2023. Robbins Basic Pathology. Ed. ke-11. Philadelphia: Saunders.
Mohan, H. 2023. Textbook of Pathology. Ed. ke-11. New Delhi: Jaypee Brothers.

NFNF1613 Biokimia Manusia

Kursus ini mengimbau kembali struktur dan fungsi organel sel, struktur protein, tatanama enzim, kinetik enzim, perencatan enzim. Peranan enzim dan vitamin dalam metabolisme juga dibincangkan. Penekanan diberi kepada pengkelasan, struktur, sifat-sifat kimia, biosintesis dan metabolisme karbohidrat, lipid dan asid amino. Topik asas genetik pula merangkumi struktur dan fungsi DNA dan RNA sebagai bahan genetik, metabolisme purina dan pirimidina, penyimpanan dan ungkapan maklumat genetik termasuk transkripsi dan terjemahan gen.

Bacaan Asas

Abali, E.E, Cline, S.D., Franklin, D.S., Viselli, S.M. & Viselli, S. 2022. Biochemistry. Ed. Ke-8. Philadelphia: Wolters Kluwer.
Kennely, P.J., Botham, K.M., McGuinness, O.P., Rodwell, V.W. and Weil, P.A. Harper's Illustrated Biochemistry. Ed. Ke-32. New York: McGraw-Hill Medical
Lieberman, M. & Peet. A., 2023. Mark's Basic Medical Biochemistry: A Clinical Approach. Ed. Ke-6. Philadelphia: Wolters Kluwer.
Pankaja, N. 2023. Biochemistry. Ed. Ke-6. Jaypee Brothers Medical Publishers
Voet, D. & Voet, J.G. 2021. Biochemistry. Ed. Ke-4. John Wiley & Sons

NFNF1713 Sains Formulasi

Kursus ini bertujuan memberi kemahiran kepada pelajar untuk menginterpretasi preskripsi ubat melalui pengenalan kepada istilah, singkatan dan simbol yang biasa digunakan. Pelajar juga akan diberi kemahiran untuk melakukan pengiraan farmaseutikal yang menjadi asas penting kepada pembangunan formulasi. Perbincangan selanjutnya akan terarah kepada garispanduan Amalan Penyediaan Baik dan Amalan Pendispensan Baik. Sebahagian besar kursus ini akan didedikasikan kepada pembancuhan beberapa bentuk dosej farmaseutikal secara ekstemporaneus, yang merangkumi pengetahuan tentang bahan eksipien, kaedah pembancuhan, keperluan perlabelan, serta bekas dan bahan pembungkus. Selain teori, pelajar akan dilengkapkan dengan kemahiran pembancuhan melalui sesi amali.

Bacaan Asas

Shahudin, S., Rabi, R., Ng, SF. And Thomas PT. 2011. *Pharmacy Practice: Guide to Compounding and Dispensing*. Malaysia: Penerbit UKM

Ansel, H, Stockton, SJ. 2016.*Pharmaceutical Calculations*. 15th Edition. United States: Lippincott, Williams & Wilkins

Agensi Regulatori Farmaseutikal Kebangsaan. 2018. *Good Compounding Practice 1st Edition*.Malaysia: Kementerian Kesihatan Malaysia.

Bahagian Perkhidmatan Farmasi. 2016. *Guide to Good Dispensing Practice 1st Edition*. Malaysia: Kementerian Kesihatan Malaysia.

British Pharmacopoeia Commission. British Pharmacopoeia 2018.

NFNF1813 Kimia Dadah

Kursus ini bertujuan memperkenalkan kimia dadah kepada pelajar farmasi. Perbincangan selanjutnya meliputi prinsip asas kimia organik farmaseutikal berkaitan struktur dan ikatan kimia, penamaan kumpulan berfungsi organik, stereokimia, mekanisme tindak balas organik berdasarkan kepada tindak balas penambahan elektrofil dan nukleofilik, sebatian amina dan heterosiklik serta kandungan dan ciri-ciri fitokimia (iaitu karbohidrat, lipid, alkaloid, terpena dan fenolik). Contoh-contoh dadah yang berkaitan akan disertakan. Pelajar juga akan mempelajari kemahiran amali dalam kaedah analisis sebatian organik dan penyaringan fitokimia daripada sumber tumbuhan.

Bacaan Asas

Dewick, P. M. 2008. Essential of Organic Chemistry. West Sussex: John Wiley & Sons, Ltd.

McMurry, J. 2016. Organic Chemistry. Ed. Ke-9. Pacific Grove: Brooks/Cole.

Sarker, S. & Nahar, L. 2007. Chemistry for Pharmacy Student: General, Organic and Natural Product Chemistry. New York: John Wiley & Son.

Solomons, T.W.G. & Fryhle, C.B. 2016. Organic Chemistry. Ed. Ke-11. New York: John Wiley & Sons, Inc.

Dewick, P.M. 2009. Medicinal Natural Products: A Biosynthetic Approach. Ed. Ke-3. England: John Wiley & Sons, Ltd.

NFNF1912 Pengenalan kepada Profesyen Farmasi

Kursus ini mengandungi sesi-sesi kuliah dan lawatan ke tapak amalan farmasi. Pelajar-pelajar akan didedahkan kepada pelbagai aspek berkaitan dengan profesyen farmasi di Malaysia dan isu-isu berkaitan. Pelajar-pelajar juga akan dibawa untuk melawat sebuah hospital dan sebuah farmasi komuniti untuk melihat peranan ahli farmasi dan aktiviti-aktiviti yang dijalankan oleh mereka di tapak-tapak tersebut.

Bacaan Asas

Anderson, S. 2005. Making Medicines. A brief history of pharmacy and pharmaceutics. Great Britain: Pharmaceutical Press.

Gennaro, A.R. 2005. Remington. The Science and Practice of Pharmacy. USA: Lippincott Williams & Wilkins.

Kelly, W.N. 2018. Pharmacy: What it is and how it works. Boca Raton: CRC Press.

Posey, L.M. 2016. Pharmacy: An Introduction to the Profession. Washington D.C.: APHA.

Laporan Tahunan Kementerian Kesihatan Malaysia 2018.

NFNF1622 Mikrobiologi

Kursus ini memberi penekanan kepada aspek-aspek asas mikrobiologi yang membincangkan jenis, struktur, pertumbuhan, metabolisme, genetik termasuk teknik pengkulturan mikrob. Aspek-aspek yang dibincangkan juga adalah taksonomi, pengkelasan dan pengenalpastian kumpulan mikrob yang penting dalam kesihatan dan penyakit serta memberi tumpuan kepada pengawalan jangkitan dan imunisasi serta teknik pensterilan dan disinfeksi.

Bacaan Asas

Brendan. F. G. & Stephen, P.D. 2023. *Hugo & Russell's Pharmaceutical Microbiology.* 9th Ed. Hoboken, NJ: Wiley-Blackwell.

Erika, T. 2021. *Microbiology: A Clinical Approach*. New York: American Medical Publishers.

Levinson, W., Chin-Hong, P., Joyce, E.A., Nussbaum, J. & Schwartz, B. 2022. *Review of Medical Microbiology & Immunology: A Guide to Clinical Infectious Diseases*. 17th Ed. New York: McGraw-Hill.

Murray, P.R., Rosenthal, K.S. & Pfaller, M.A. 2021. *Medical Microbiology.* 9th Ed. Edinburgh; New York: Elsevier.

Scarlett, J. 2021. *Microbiology: Basic Principles.* New York: Murphy & Moore Publishing.

NFNF1623 Farmakologi dan Toksikologi Asas

Kursus ini memberi penekanan terhadap prinsip farmakologi asas, termasuklah farmakodinamik, farmakokinetik dan ketoksikan. Pelajar akan didedahkan terhadap aspek kimia medisinal dadah terhadap prinsip yang dibincangkan. Kursus ini merangkumi farmakodinamik, kimia medisinal tindakan dadah, laluan pemberian dadah, farmakokinetik, kimia medisinal metabolism, interaksi dadah, prinsip asas toksikodinamik dan toksikokinetik, mekanisme ketoksikan, keracunan dan rawatan dadah serta pengujian ketoksikan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. Ke-14. USA: McGraw-Hill Education.

Katzung, B.G. 2021. Basic & Clinical Pharmacology. Ed. ke-15. USA: McGraw Hill Medical.

Klaassen, C. & Watkins III, J.B. 2021. Casarett & Doull's Essentials of Toxicology. Ed. Ke-4. New York: McGraw-Hill.

Peña-Fernández, A., Evans, M.D. & Cooke, M.S. 2022. Toxicology for the Health and Pharmaceutical Sciences. CRC Press.

Rang, H., Dale, M., Ritter, J. & Flower, R. 2024. Rang and Dale's Pharmacology. Ed. ke-10. UK: Churchill Livingstone.

NFNF1722 Rekabentuk dan Pembangunan Dos I

Dalam kursus ini, pelajar akan memperolehi prinsip asas dan pengetahuan mengenai bahan farmaseutikal, perumusan produk dan pembangunan rekabentuk dos pepejal. Kursus ini bertujuan memperkenalkan prinsip formulasi, teknologi pembuatan dan jaminan kualiti produk bagi bentuk dos pepejal. Topik utama yang dibincangka termasuk praformulasi, teknologi serbuk, tablet dan kapsul serta ujian kestabilan untuk rekabentuk dos pepejal.

Bacaan Asas

Aulton M., Taylor K. 2017. *Aulton's Pharmaceutics*. *The Design and Manufacture of Medicines*. 4th Edition. Churchill Livingstone.

Allen L, Ansel H. C. 2017. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. Lippincott Williams & Wilkins.

Florence, A.T & Atwood, D. 2015. *Physicochemical Principles of Pharmacy*. 5th edition.

London: Pharmaceutical Press.

Simon Gaisford, Mark Saunders 2012. *Essentials of Pharmaceutical Preformulation.* John Wiley & Sons, Ltd.

Shelley Chambers Fox. 2014. *Remington Education: Pharmaceutics.* Pharmaceutical Press.

NFNF1822 Reka Bentuk dan Pembangunan Dadah

Kursus ini merangkumi prinsip asas dan strategi dalam penemuan dan reka bentuk dadah baharu yang dibangunkan untuk dipasarkan termasuk pembangunan dadah daripada hasil semulajadi. Kursus ini menerangkan bagaimana molekul-molekul dadah yang berpotensi dikenal pasti dan seterusnya dioptimumkan sebagai dadah yang selamat dan berkesan. Kursus ini juga mendalami bagaimana dadah direka secara rasional dan alat yang digunakan seperti; Ia juga melihat reka bentuk dadah rasional dan alat yang digunakan misalnya; hubungan aktiviti struktur kuantitatif (QSAR), sintesis kombinatorial dan reka bentuk bantuan-komputer.

Bacaan Asas

Nogrady, T. & Weaver, D.F. 2005. Medicinal Chemistry: A Molecular and Biochemical Approach. Ed. Ke-3. United Kingdom: Oxford University Press.

Patrick, G.L. 2017. An Introduction to Medicinal Chemistry. Ed. Ke-6. United Kingdom: Oxford University Press.

Lemke, T.L., Williams, D.A., Roche, V.F. & Zito, S.W. 2017. Essentials of Foye's Principles of Medicinal Chemistry. USA: Lippincott Williams & Wilkins.

Thomas, G. 2007. Medicinal Chemistry.Ed. Ke-2. Chinchester: John Wiley.

Delgado, J.N. & Remers, W.A. 2011. Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry. Ed. Ke-12. Philadelphia: Lippincott-Raven.

NFNF1922 Komunikasi Profesional dan Pendidikan Pesakit

Kursus ini mengandungi siri kuliah berkenaan topik-topik penting dalam komunikasi dan pendidikan pesakit. Antara topik- topik penting yang diliputi merangkumi pengenalan kepada teori komunikasi, psikologi dalam komunikasi dengan pesakit, komunikasi interprofesional, pendidikan pesakit dan promosi kesihatan.

Bacaan Asas

Robert S Beardsley et al. 2012. *Communication skills in pharmacy practice*, 6th ed, Philadelphia PA: Lippincott Williams & Wilkins.

Melanie J Rantucci. 2007. *Pharmacist talking with patient: A guide to patient counselling*, 6th ed, Philadelphia PA: Lippincott Williams & Wilkins.

Bruce A Berger. 2009. *Communication skills for pharmacists: Building relationships, improving patient care*, 3rd ed, WashingtonDC: American Pharmacists Association.

Lauster, Colleen. Burlington, MA. 2014. *Fundamental skills for patient care in pharmacy practice*, Barlington MA: Jones & Bartlett Learning.

Levounis P, Arnaout B, Carla Marienfeld. 2017. Motivational interviewing for clinical practice, Arlington VA: American Psychiatric Association Publishing.

Donna Weiss, Felice J. Tilin, Marlene J. Morgan. 2018. *The interprofessional health care team: leadership and development,* Barlington MA: MA: Jones & Bartlett Learning.

NFNF2612 Imunologi

Kursus ini bertujuan untuk memahami fungsi sistem imun tubuh badan manusia dalam melindungi serta melawan penyakit. Perkara yang dibincangkan adalah berkenaan komponen di dalam sistem imun yang merangkumi sel, tisu dan organ yang berfungsi secara menyeluruh untuk mengekalkan sistem tindak balas yang seimbang dalam menangani sesuatu penyakit. Mekanisma perlindungan badan oleh komponen sistem imun dibincangkan secara terperinci untuk memahami pembentukan penyakit-penyakit imun seperti alahan, autoimun dan kanser. Kaedah diagnostik dan kajian yang diadaptasi daripada bentuk tindak balas imun dan digunakan untuk faedah terapi juga akan dirangkumi dalam kursus ini.

Bacaan Asas

Abbas, A.K., Lichtman, A.H., & Pillai, S. 2023. Basic Immunology: Functions and Disorders of the Immune System. Edisi ke-7. Philadelphia: Saunders Elsevier.

Delves, P.J., Martin, S.J., Burton, D.R., & Roitt, I.M. 2021. Roitt's Essential Immunology. Edisi ke-13. Chichester, West Sussex: John Wiley & Sons.

Doan, T., Melvold, R., Viselli, S., & Waltenbaugh, C. 2022. Lippincott's Illustrated Review: Immunology. Edisi ke-3. Philadelphia: Lippincott Williams & Wilkins.

Levinson, W. 2021. Review of Medical Microbiology and Immunology: A Guide to Clinical Infectious Diseases. Edisi ke-17. New York: Lange Medical Book/McGraw-Hill.

Murphy, K., Travers, P., & Walport, M. 2022. Janeway's Immunobiology. Edisi ke-10. New York: Garland Science/Taylor & Francis Group.

NFNF2632 Farmakologi Sistem Saraf Periferi

Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal ubat yang bertindak ke atas sistem saraf periferi. Pengenalan kepada anatomi dan fisiologi bahagian-bahagian penting sistem saraf periferi dibincangkan. Ubat yang dirangkumi termasuk agen pengaktifan kolinoseptor, agen penyekat kolinesterase, antagonis kolinoseptor, agen pengaktifan adrenoseptor, dan antagonis adrenoseptor. Pelajar akan didedahkan terhadap penggunaan rasional ubat dalam terapi gangguan sistem saraf periferi bagi setiap kumpulan ubat yang dibincangkan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. *Goodman and Gilman's The Pharmacological Basis of Therapeutics*. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. *An Introduction to Medicinal Chemistry*. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. *Rang and Dale's Pharmacology*. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. *Katzung's Basic & Clinical Pharmacology*. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. *Principles of Anatomy & Physiology*. Ed. ke-16. USA: Wiley.

NFNF2652 Farmakoterapi Gangguan Endokrin dan Autakoid

Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal dadah yang bertindak ke atas sistem endokrin dan genitourinari untuk rawatan kelainan endokrin dan genitourinari. Pengenalan kepada anatomi dan fisiologi bahagian-bahagian penting dan patofisiologi kelainan sistem endokrin dan genitourinari dibincangkan. Kelainan/dadah endokrin dan genitourinari merangkumi penyakit tiroid, kencing manis, penyakit adrenal, erektil disfungsi, ejakulasi pramatang, steroid anabolik, agen kontraseptif oral, kemandulan, terapi penggantian hormon dan hiperplasia prostat benigna. Fitoterapi berkaitan sistem endokrin dan genitourinari juga dijelaskan. Pelajar akan didedahkan terhadap penggunaan rasional dadah dalam aspek terapi klinikal pesakit bagi setiap kelainan/penyakit yang dibincangkan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. *Goodman and Gilman's The Pharmacological Basis of Therapeutics*. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. *An Introduction to Medicinal Chemistry*. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. *Rang and Dale's Pharmacology*. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. *Katzung's Basic & Clinical Pharmacology*. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. *Principles of Anatomy & Physiology*. Ed. ke-16. USA: Wiley.

NFNF2712 Rekabentuk dan Pembangunan Dos II

Dalam kursus ini, prinsip dan pengetahuan asas dalam bahan farmaseutikal, perumusan produk dan pembangunan rekabentuk dos cecair dan gas akan diliputi. Kursus ini juga memperkenalkan formulasi persediaan steril dan parenteral. Topik utama termasuk sistem penyebaran (koloid, emulsi dan penggantungan), kimia permukaan, termodinamik, teknik aseptik, parenteral, aerosol dan inhaler, jaminan kualiti untuk sediaan cecair dan gas.

Bacaan Asas

Aulton M., Taylor K. 2017. *Aulton's Pharmaceutics*. *The Design and Manufacture of Medicines.* 4th Edition. Churchill Livingstone.

Allen L, Ansel H. C. 2017. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. Lippincott Williams & Wilkins.

Florence, A.T & Atwood, D. 2015. *Physicochemical Principles of Pharmacy*. 5th edition. London: Pharmaceutical Press.

Simon Gaisford, Mark Saunders 2012. *Essentials of Pharmaceutical Preformulation*. John Wiley & Sons, Ltd.

Shelley Chambers Fox. 2014. *Remington Education: Pharmaceutics*. Pharmaceutical Press.

NFNF2813 Kaedah Farmakopia untuk Analisis Dadah

Kursus ini akan memperkenalkan pelbagai aspek teori dan praktikal yang berkaitan dengan kaedah pentitratan Farmakopeia, teknik pemisahan kualitatif dan kuantitatif yang digunakan dalam penentuan bahan-bahan farmaseutikal dan kawalan bendasing dalam bahan-bahan farmaseutikal. Kaedah penitratan farmakopeia merangkumi titratan asid-bes, bukan akueus, pemendakan, kompleksometri dan redoks. Manakala teknik pemisahan kualitatif dan kuantitatif memberi penekanan kepada kaedah pengekstrakan biasa, teknik pemisahan kromatografi contohnya kromatografi lapisan nipis, kromatografi gas, kromatografi cecair, kromatografi afiniti, dan kromatografi cecair genting lampau serta teknik lain contohnya kaedah elektroforesis kapilari prestasi tinggi.

Bacaan Asas

Steen, H.H., Stig, P. & Knut E. R. 2012. *Introduction to Pharmaceutical Chemical Analysis*, Wiley.

Watson, D.G. 2020. *Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists*. 5th. Ed. Edinburgh: Elsevier Churchill Livingstone.

British Pharmacopoeia. 2018. London: *British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency*.

Beckett, A.H. & Stenlake, J.B. 2005. *Practical Pharmaceutical Chemistry. Part 2*. UK: Athlone Press.

NFNF2932 Perubatan Tradisional dan Komplementari

Kursus ini mendedahkan pelajar kepada prinsip, amalan dan kaedah rawatan pelbagai perubatan tradisional dan komplementari (T/CM) yang diamalkan dalam penjagaan kesihatan primer. Topik yang diberikan penekanan adalah asas saintifik T/CM, perubatan tradisional dalam penjagaan kesihatan asas, perubatan tradisional Melayu, Cina dan India, naturopati dan terapi pemakanan, herbalisme barat, homeopati, aromaterapi, akupunktur, refleksologi, kiropraktik dan osteopati. Pendedahan kepada pengetahuan asas ini diharapkan dapat membantu para pelajar membuat pertimbangan dan memberikan nasihat yang seimbang kepada pesakit yang menggunakan rawatan T/CM.

Bacaan Asas

Boyle MA 2019. Personal nutrition. 10th Ed. Cengage Learning.

Goh SS, Chaw JC 2023. Koleksi konsep perubatan tradisional China. Penerbit USM.

Harun MP 2019. Kitab tib: ilmu perubatan Melayu. Perpustakaan Negara Malaysia: Kajian teks dan suntingan. Kuala Lumpur.

Micozzi MS 2015. Fundamentals of complementary and alternative medicine. 5th Ed. Elsevier.

Nix S 2022. William's basic nutrition and diet therapy. 16th Ed. Elsevier.

Stephen DK. 2021. Complementary and alternative medicine. 1st Ed. Elsevier.

NFNF 2912 Pendekatan Kepada Farmasi Klinikal

Kursus ini mengandungi siri kuliah, bengkel dan pembentangan kes. Pelajar akan didedahkan kepada prinsipal asas farmasi klinikal dan penjagaan farmaseutikal pesakit hospital. Pelajar juga akan diberi pengenalan kepada rekod medikal pesakit serta informasi penyakit yang relevan kepada penjagaan farmaseutikal. Pendekatan farmasi klinikal seperti pemilihan ubat yang betul dan pemantauan pesakit lain juga akan didedahkan. Interpretasi data makmal yang berkaitan terapi ubat juga akan dibincangkan.

Bacaan Asas

Zeind, S.C., Carvalho, M.G. 2024. Applied Therapeutics: The Clinical Use of Drugs, 12th ed. Philadelphia: Lippincott Williams & Wilkins.

Rtieze, K.J. 2012. Clinical Skills For Pharmacists: A Patient-Centered Approach, 3rd ed. Missouri: Elsever Mosby.

Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice: The Patient-Centered Approach to Medication Management care, 3rd ed. New York: Mc Graw-Hill.

DiPiro, J.T., Yee, G.C., Haines S.T., Nolin, T.D., Ellingrod V.L., Posey, L.M. 2024. DiPiro's pharmacotherapy : a pathophysiologic approach, 12th ed. New York:McGraw Hill.

Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists – A basis for clinical pharmacy, 3rd ed. London: Chapman & Hall.

NFNF2623 Farmakoterapi Jangkitan, Infestasi dan Gangguan Imun

Kursus ini disampaikan melalui kuliah, tutoran, diskusi kumpulan, kajian kes dan tugasan. Kursus ini bertujuan untuk memperkenalkan konsep farmakologi dan kimia medisinal antibiotik, antivirus, antiparasit, antikulat, dan dadah immunomodulator. Penekanan diberikan kepada prinsip terapi antimikrob, mekanisme tindakan dadah, mekanisme rintangan dan hubungan aktiviti struktur untuk pelbagai kelas dadah antimikrob dan dadah immunomodulator.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. An Introduction to Medicinal Chemistry. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. Rang and Dale’s Pharmacology. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. Katzung's Basic & Clinical Pharmacology. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. Principles of Anatomy & Physiology. Ed. ke-16. USA: Wiley.

NFNF 2622 Farmakoterapi Gangguan Renal dan Genitourinari

Kandungan kursus ini disampaikan melalui sesi kuliah, tutoran, kajian kes dan tugasan kumpulan. Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal dadah yang bertindak ke atas sistem renal dan genitourinari. Pengenalan kepada anatomi dan fisiologi bahagian-bahagian penting renal dan genitourinari, dan patofisiologi kelainan sistem ini dibincangkan. Kelainan renal dan genitourinari termasuk kegagalan renal akut dan kronik, sindrom nefrotik, terapi gantian renal dan pembengkakan prostat yang bukan kanser. Fitoterapi berkaitan dan penyakit aruhan dadah ke atas sistem renal dan genitourinari juga dijelaskan. Pelajar akan didedahkan terhadap penggunaan rasional dadah dalam aspek klinikal terapi pesakit bagi setiap kelainan/penyakit yang dibincangkan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. An Introduction to Medicinal Chemistry. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. Rang and Dale's Pharmacology. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. Katzung's Basic & Clinical Pharmacology. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. Principles of Anatomy & Physiology. Ed. ke-16. USA: Wiley.

NFNF2722 Rekabentuk dan Pembangunan Dos III

Prinsip asas dan pengetahuan dalam bahan-bahan eksipien farmaseutikal, pembangunan produk dan jaminan kualiti rekabentuk dos separa pepejal (krim, salap, pes dan gel) akan diliputi. Kursus ini juga memperkenalkan aspek biofarmaseutik pelbagai laluan penyampaian, iaitu oral, bukal, sublingual, topikal, transdermal, hidung, pulmonari, otik, mata, parenteral, vagina, rektum dan perubatan nano.

Bacaan Asas

Aulton M., Taylor K. 2017. *Aulton's Pharmaceutics. The Design and Manufacture of Medicines*. 4th Edition. Churchill Livingstone.

Allen L, Ansel H. C. 2017. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. Lippincott Williams & Wilkins.

Florence, A.T & Atwood, D. 2015. *Physicochemical Principles of Pharmacy*. 5th edition. London: Pharmaceutical Press.

Simon Gaisford, Mark Saunders 2012. *Essentials of Pharmaceutical Preformulation*. John Wiley & Sons, Ltd.

Shelley Chambers Fox. 2014. *Remington Education: Pharmaceutics*. Pharmaceutical Press.

NFNF2823 Teknik Spektroskopi untuk Analisis Dadah

Pelajar akan didedahkan kepada pelbagai aspek teori dan praktikal yang berkaitan dengan spektroskopi termasuk prinsip, peralatan, pentafsiran data dan kegunaannya dalam analisis farmaseutikal. Teknik spektroskopi yang akan dipelajari adalah spektrofotometri ultralembayung dan nampak, spektroflurometri, spektrofotometri penyerapan dan pemancaran atom, spektrometri inframerah, spektrometri jisim, spektrometri resonans magnet nukleus, polarimetri, dikroisme bulat dan kristalografi sinar-x. Data analitik menggunakan teknik kemometrik juga akan dibincangkan. Pelajar juga akan didedahkan kepada kegunaan gabungan kaedah spektroskopi bagi mengelusidasi struktur sebatian dalam penemuan dadah, analisis farmaseutikal dalam pembangunan dan kawalan kualiti dadah, dan pemantauan terapi dan penyalahgunaan dadah.

Bacaan Asas

Beckett, A.H. & Stenlake, J.B. 2005. *Practical Pharmaceutical Chemistry*. Part 2. UK: Athlone Press.

British Pharmacopoeia. 2018. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Pavia, D.L., Lampman, G.M. & Kriz, G.S. Vyvyan, J.A. 2015. *Introduction to Spectroscopy*. USA: Cengage Learning.

Siddiqui, A. A. 2011. *Pharmaceutical Analysis*. New Delhi: CBS Publishers.

Watson, D.G. 2020. *Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists*. 5th. Ed.Edinburgh: Elsevier Churchill Livingstone.

NFNF2922 Perundangan, Etika dan Polisi dalam Farmasi

Praktis farmasi bukan saja meliputi aspek saintifik malah melibatkan aspek perundangan, nilai-nilai etika dan polisi-polisi kerajaan. Kursus ini memberi pendedahan terhadap akta dan peraturan yang perlu diketahui di dalam praktis farmasi, isu-isu etika-bio dan pendedahan terhadap polisi-polisi kerajaan berkenaan pengurusan kesihatan dan sistem kesihatan nasional juga ditekankan di sini.

Bacaan Asas

Akta-akta dan Peraturan-peraturan berkaitan farmasi

Code of Ethics For Pharmacists 2018

Ministry of Health Malaysia, 2012. The National Medicines Policy (Dasar Ubat Nasional), Ed. Ke-2, Kementerian Kesihatan Malaysia.

NFNF3612 Farmakoterapi Gangguan Sistem Saraf Pusat

Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal dadah yang bertindak ke atas sistem saraf pusat untuk rawatan kelainan neurologi dan psikiatri. Pengenalan kepada anatomi dan fisiologi bahagian-bahagian penting otak dan patofisiologi kelainan sistem saraf pusat dibincangkan. Kelainan sistem saraf pusat yang dirangkumi termasuk kesakitan, epilepsi, penyakit Alzheimer, penyakit Parkinson, migrain, keresahan, kemurungan, skizofrenia, kelainan bipolar, dan penyalahgunaan dan penagihan dadah. Fitoterapi berkaitan dan penyakit aruhan dadah ke atas sistem saraf pusat juga dijelaskan. Pelajar akan didedahkan terhadap penggunaan rasional dadah dalam aspek klinikal terapi pesakit bagi setiap kelainan/penyakit yang dibincangkan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. An Introduction to Medicinal Chemistry. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. Rang and Dale’s Pharmacology. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. Katzung's Basic & Clinical Pharmacology. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. Principles of Anatomy & Physiology. Ed. ke-16. USA: Wiley.

NFNF3613 Farmakoterapi Gangguan Kardiovaskular dan Respiratori

Kandungan kursus ini disampaikan melalui sesi kuliah, tutoran, amali makmal, kajian kes dan tugasan kumpulan. Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal dadah yang bertindak ke atas sistem kardiovaskular dan sistem respiratori untuk rawatan kelainan sistem kardiovaskular dan respiratori. Pengenalan kepada anatomi, fisiologi bahagian-bahagian penting dan patofisiologi kelainan sistem kardiovaskular dan sistem respiratori dibincangkan. Kelainan/dadah sistem kardiovaskular dan respiratori yang dirangkumi termasuk hipertensi, diuretik, kegagalan jantung kongestif, penyakit jantung iskemia, aritmia, hiperlipidemia, agen antikoagulan, trombolitik dan antiplatelet, asma, COPD dan batuk. Fitoterapi berkaitan dan penyakit aruhan dadah ke atas sistem kardiovaskular dan respiratori juga dijelaskan. Pelajar akan didedahkan terhadap penggunaan rasional dadah dalam aspek klinikal terapi pesakit bagi setiap kelainan/penyakit yang dibincangkan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. An Introduction to Medicinal Chemistry. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. Rang and Dale’s Pharmacology. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. Katzung's Basic & Clinical Pharmacology. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. Principles of Anatomy & Physiology. Ed. ke-16. USA: Wiley.

NFNF3632 Statistik dan Kaedah Penyelidikan

Kursus ini mengandungi sesi-sesi kuliah, tutorial dan bengkel. Pelajar akan diperkenalkan kepada teknik-teknik asas statistik seperti statistik deskriptif dan pentaksiran. Kursus ini juga memberi pendedahan kepada penggunaan perisian analisis statistik. Pelajar juga akan diajar tentang jenis rekabentuk kajian dan proses menjalankan kajian.

Bacaan Asas

Mann, P.S. 2017. Introductory Statistics. Ed. Ke-9. USA: John Wiley & Sons Ltd.

Gravetter, F. & Wallnau, L. 2017. Statistics for the Behavioral Sciences. Ed. Ke-10. USA: Wadsworth, Cengage Learning.

Martin, W. & Bridgmon, K. 2012. Quantitative and Statistical Research Methods. From Hypothesis to Results. USA: Jossey-Bass.

Pallant, J. 2016. SPSS Survival Manual. Ed. Ke-5. Buckingham: Open University Press.

Field, A. 2018. Discovering Statistics Using IBM SPSS Statistics. Ed. Ke-5. London: Sage Publications Ltd.

NFNF3812 Jaminan Kualiti Farmaseutikal

Kursus ini bertujuan memberikan pengetahuan dan kefahaman kepada pelajar berhubung keperluan-keperluan spesifik berkaitan jaminan kualiti dan peraturan-peraturan yang berkaitan dalam industri farmaseutikal dan industri lain yang berkaitan. Kuliah memberi penekanan kepada prinsip jaminan kualiti, dokumentasi dan rekod, prinsip-prinsip dan aplikasi garis panduan Amalan Perkilangan Baik (GMP), Amalan Makmal Baik (GLP) dan Amalan Klinikal Baik (GCP) serta keperluan-keperluan regulatori untuk menjamin kualiti dalam pengeluaran farmaseutikal dan industri berkaitan. Lawatan industri dan sesi audit dapat mengukuhkan pengetahuan dan kemahiran dengan melihat kes-kes sebenar sistem pengawalan GMP dan GLP. Kursus ini memberikan pendedahan dari aspek pengetahuan teori dan kemahiran dalam pelbagai aplikasi jaminan kualiti.

Bacaan Asas

Graham P. Bunn, 2019. Good Manufacturing Practices for Pharmaceuticals, 7th Edition. US: Drugs and the Pharmaceutical Sciences..

PIC/S, January 2017. Guide to Good Manufacturing Practice for Medicinal Products, PE 009-8.

WHO, 2004. Quality Assurance of Pharmaceuticals, A Compendium of guidelines and related materials, Volume 2, Geneva.

British Pharmacopoeial Commission 2018. British Pharmacopoeia 2018. London. The Stationary Office

United States Pharmacopeial Convention 2018. United States Pharmacopeia-National Formulary (USP 32-NF 27). Rockville

NFNF3912 Amalan Farmasi Komuniti

Kursus ini mengandungi sesi-sesi kuliah, tutoran, seminar dan sangkutan di farmasi komuniti termasuk pengurusan simptom dan keselamatan pengubatan. Selain itu, kursus ini juga memberi pendedahan terhadap aspek pengendalian pengurusan farmasi komuniti. Pelajar akan terlibat dalam projek kumpulan dalam merancang pembukaan dan pengurusan sebuah farmasi komuniti. Penguasaan pengetahuan dan kemahiran daripada kursus ini akan membantu dalam persediaan pelajar untuk mengurus dan memberi perkhidmatan farmasi yang baik kepada pesakit di komuniti.

Bacaan Asas

Rutter, P. 2017. Community Pharmacy: Symptoms, Diagnosis and Treatment. Ed. Ke- 14. U.K.: Elsevier Health Sciences.

Addison, B., Brown, A., Edwards, R. & Gray G. 2016. Minor Illness or Major Disease. Ed. Ke-6. Pharmaceutical Press.

Blenkinsopp, A., Paxton, P. & Blenkinsopp, J. 2014. Symptoms in the Pharmacy. A Guide to the Management of Common Illness. Ed. Ke-7. Wiley-Blackwell.

Desselle, S., Zgarrick, D. & Alston, G. 2012. Pharmacy Management. Ed. Ke-3. McGraw- Hill Professional.

Tootelian, D., Wertheimer, A. & Mikhailitchenko, A. 2012. Essentials of Pharmacy Management. Ed. Ke-2. Pharmaceutical Press.

NFNF3913 Perkhidmatan Farmasi Khusus I

Kursus ini mengandungi beberapa siri kuliah, tutoran, lawatan dan bengkel. Pelajar akan didedahkan kepada prinsip asas farmakokinetik klinikal, pemonitoran ubat terapeutik, interpretasi paras ubat dalam serum, pendekatan pengubahsuaian dos dan pemonitoran klinikal pesakit. Pelajar juga akan mempelajari tentang perkhimatan informasi dadah dan racun. Perkhidmatan ini meliputi mendapatkan maklumat dan mengklasifikasikannya, mengendalikan pertanyaan, kajian kepustakaan, penilaian ubat, pemantauan penggunaan ubat dan kesan mudarat ubat. Pelajar juga akan didedahkan kepada asas-asal farmakogenetik dan informatik kesihatan.

Bacaan Asas

DiPiro, J.T., Talbert, R.L., Yee, G.C., Matzke, G.R., Wells, B.G. & Posey, LM. 2017. Pharmacotherapy: A Pathophysiology Approach. 10 th edn. New York: McGraw-Hill.

Young, L. Y. & Koda-Kimble, M. A. 2013 Applied therapeutics: The clinical use of drugs. 10th edn. Vancouver: Applied Therapeutics

Rowland M. & Tozer T.N. 2009 Clinical Pharmacokinetics: Concepts and Applications. 3rd edn. Baltimore: Lippincott Williams & Wilkins

Winter M.E. 2018. Basic Clinical Pharmacokinetics. 6th edn. Vancouver: Applied Therapeutics Inc.

Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice: The Patient-Centered Approach to Medication Management. 3rd edn. New York: Mc Graw-Hill.
Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists: A basis for clinical pharmacy. 3rd edn. London: Chapman & Hall

NFNF3932 Penjagaan Farmaseutikal Populasi Khusus
Kursus ini mengandungi siri kuliah, bengkel dan kajian kes. Pelajar akan dilatih dalam penjagaan farmaseutikal untuk populasi khusus iaitu kesihatan wanita, pediatrik, geriatrik dan penjagaan paliatif dan hospis.

Bacaan Asas
Beardsley R.S., Kimberlin C.L. &Tindall W.N. 2008. Communication Skills in Pharmacy Practice, 5th ed. Philadelphia: Lippincott Williams & Wilkins.
DiPiro, J.T., Talbert, R.L., Yee, G.C., Matzke, G.R., Wells, B.G. & Posey, LM. 2008. Pharmacotherapy: A Pathophysiology Approach. 7thedn. New York: McGraw-Hill.
Herfindal, E.T. 1992. Clinical Pharmacy and therapeutics. Ed. Ke-5. Baltimore: Williams & Wilkins.
Young, L. Y. & Koda-Kimble, M. A. 2013 Applied therapeutics: The clinical use of drugs. 10thedn. Vancouver: Applied Therapeutics.
Rowland M. & Tozer T.N. 1995 Clinical Pharmacokinetics: Concepts and Applications. Baltimore: Lippincott Williams& Wilkins.
Winter M.E. 2010. Basic Clinical Pharmacokinetics. 5thedn. Vancouver: Applied Therapeutics Inc.
Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice:The Patient-Centered Approach to Medication Management. 3rd edn. New York: Mc Graw-Hill.
Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists: A basis for clinical pharmacy. 3rd edn. London: Chapman & Hall.

NFNF3182 Projek Penyelidikan I
Dalam kursus ini, pelajar didedahkan kepada prinsip-prinsip untuk merangka dan menjalankan projek penyelidikan, menganalisis dan mentafsir data serta penulisan disertasi. Jenis penyelidikan yang dilakukan adalah kajian makmal, kajiselidik, tinjauan sistematik dan analisis meta. Pelajar akan menjalankan projek penyelidikan selama dua semester di bawah seliaan pensyarah melalui kursus ini dan kursus NFNF4574. Aktiviti kursus adalah pembentangan cadangan penyelidikan, penulisan disertasi, pembentangan hasil dan ujian lisan. Penilaian berterusan akan dilakukan sepanjang sesi.

Bacaan Asas
Buku berkaitan bidang yang dikaji.
Jurnal berkaitan bidang yang dikaji.
Panduan penulisan tesis Gaya UKM. Edisi Semak 2010. Bangi: Pusat Pengajian Siswazah, Universiti Kebangsaan Malaysia.

NFNF3622 Farmakoterapi Gangguan Gastrousus

Kandungan kursus ini disampaikan melalui sesi kuliah, tutoran, kajian kes dan tugasan kumpulan. Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal dadah yang bertindak ke atas sistem gastrousus. Pengenalan kepada anatomi dan fisiologi bahagian bahagian9 penting gastrousus dan patofisiologi kelainan sistem ini dibincangkan. Kelainan gastrousus termasuk sembelit, diarea, emesis, penyakit ulser peptik, esofagitis refluks, penyakit keradangan usus, kegagalan hepar dan sirosis, dan obesiti. Fitoterapi berkaitan dan penyakit aruhan dadah ke atas sistem gastrousus juga dijelaskan. Pelajar akan didedahkan terhadap penggunaan rasional dadah dalam aspek klinikal terapi pesakit bagi setiap kelainan/penyakit yang dibincangkan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. An Introduction to Medicinal Chemistry. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. Rang and Dale’s Pharmacology. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. Katzung's Basic & Clinical Pharmacology. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. Principles of Anatomy & Physiology. Ed. ke-16. USA: Wiley.

NFNF3642 Farmakoterapi Gangguan Muskuloskeletal dan Integumen

Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal ubat yang bertindak ke atas sistem muskuloskeletal dan sistem integumen (kulit). Kuliah pengenalan kepada anatomi dan fisiologi bahagian-bahagian penting dua sistem tersebut akan disampaikan. Patofisiologi gangguan muskuloskeletal dan kulit akan dibincangkan: gout, osteoartritis, reumatoid artritis, ekzema, dermatitis, psoriasis, jerawat, kudis buta, dan ketuat. Topik-topik lain yang berkaitan termasuk fitoterapi serta pengurusan bukan farmakologi gangguan muskuloskeletal dan kulit, dan ketoksikan muskuloskeletal dan kulit yang disebabkan oleh penggunaan ubat. Pelajar juga akan didedahkan terhadap penggunaan rasional ubat untuk merawat gangguan muskuloskeletal dan kulit dalam pelbagai senario klinikal.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. An Introduction to Medicinal Chemistry. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. Rang and Dale’s Pharmacology. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. Katzung's Basic & Clinical Pharmacology. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. Principles of Anatomy & Physiology. Ed. ke-16. USA: Wiley.

NFNF3662 Farmakoterapi Onkologi dan Gangguan Hematologi

Kandungan kursus ini disampaikan melalui sesi kuliah, tutoran, kajian kes dan tugasan kumpulan. Kursus ini memberi penekanan terhadap farmakologi dan kimia medisinal dadah yang bertindak ke atas onkologi dan hematologi untuk rawatan kelainan sistem ini. Pengenalan kepada fisiologi darah dan patofisiologi kanser dan kelainan hematologi juga dibincangkan. Farmakoterapi yang dirangkumi termasuk talassemia, anemia, terapi darah dan bendalir, kanser paru-paru, kanser payudara, kanser serviks dan ovari, kanser prostat, kanser hepar, kanser kolon dan hematologi malignan dibincangkan. Fitoterapi berkaitan onkologi dan hematologi juga dijelaskan. Pelajar akan didedahkan terhadap penggunaan rasional dadah dalam aspek klinikal terapi pesakit bagi setiap kelainan/penyakit yang dibincangkan.

Bacaan Asas

Brunton, L.L. & Knollman, B. 2023. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-14. USA: McGraw-Hill Education.

Patrick, G.L. 2023. An Introduction to Medicinal Chemistry. Ed. ke-7. Oxford: Oxford University Press.

Ritter, J.M. 2024. Rang and Dale’s Pharmacology. Ed. ke-10. Netherlands: Elsevier.

Todd, W.V. 2024. Katzung's Basic & Clinical Pharmacology. Ed. ke-16. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. Principles of Anatomy & Physiology. Ed. ke-16. USA: Wiley.

NFNF3923 Perkhidmatan Farmasi Khusus II

Kursus ini bertujuan untuk memperkenalkan pelajar kepada pelbagai jenis perkhidmatan farmasi terkhusus yang terdapat seperti Unit IV campuran (IV), farmasi nuklear (NP), pemakanan parenteral (PN) dan rekonstitusi ubat sitotoksik (CDR). Kursus ini akan membantu pelajar untuk memahami aspek organisasi unit-unit tersebut, sistem pengurusan dan pengendalian unit, di samping melatih aspek farmaseutikal dan teknikal (pendispensan aseptik) dalam amalan farmasi. Pelajar juga akan diberi pendedahan kepada *Interprofessional Learning* (IPL) bersama pelajar-pelajar daripada fakulti lain. Selain daripada syarahan dan tutoran, pelajar juga dikehendaki mengikuti beberapa siri bengkel dan lawatan ke hospital.

Bacaan Asas

DiPiro J.T., & Yee G.C., & Haines S.T., & Nolin T.D., & Ellingrod V.L., & Posey L(Eds.). 2023. DiPiro's Pharmacotherapy: A Pathophysiologic Approach, 12th Edition. McGraw Hill.

Kowalsky, R.J. & Weathermen, K.D. 2020. Radiopharmaceuticals in nuclear pharmacy and nuclear medicine. 4th edition. American Pharmacist Association.

Drug Information Handbook: A Clinically Relevant Resource for All Healthcare Professionals. 2018. 27th Edition. Lexicomp Inc.

Caroline S. Zeind, Michael G. Carvalho, Judy W. Cheng, Kathy Zaiken, Trisha LaPointe. 2024. Applied Therapeutics: The Clinical Use of Drugs. Wolters Kluwer Health; 12th edition

Winfield, A.J. & Richards, R.M.E. 2014. Pharmaceutical Practice. 5th edition. Edinburgh: Churchill Livingstone.

NFNF3922 Farmakoepidemiologi dan Farmakoekonomik

Kursus ini mengandungi beberapa tajuk yang berciri gunaan seperti bidang farmakoepidemiologi dan farmakoekonomik. Farmakoepidemiologi merangkumi kajian berkaitan dengan corak penggunaan, keberkesanan dan keselamatan ubat-ubatan dalam skala populasi yang besar. Bidang farmakoekonomik membantu dalam penilaian terhadap sumber dan kos perbelanjaan berkaitan ubat-ubatan dalam sistem kesihatan. Kursus ini dikendalikan melalui sesi-sesi kuliah interaktif dan kajian kes.

Bacaan Asas

Rothman, K. J., Greenland, S., & Lash, T. L. 2012. *Modern Epidemiology (Vol. 3).* Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Hartzema, A.G., Tilson, H.H., & Chan, K.A. 2008. *Pharmacoepidemiology and Therapeutic Risk Management.* Harvey Whitney Books.

Rascati, K.L. 2013. *Essentials of Pharmacoeconomics (2nd Ed.)*. Philadelphia: Lippincott Williams and Wilkins.

Bootman, J. L., Townsend, R. J., & McGhan, W. F. 2005. *Principles of pharmacoeconomics (6th Ed.)*. Cincinnati, OH: Harvey Whitney Books Co.

Haycox, A., Walley, T. & Boland, A. (2004). *Pharmacoeconomics.* Edinburgh; New York: Churchill Livingstone,

NFNF3722 Bioteknologi Farmaseutikal dan Radiofarmaseutikal

Kursus ini memperkenalkan bidang biofarmaseutikal dan radiofarmaseutikal termasuk produk berasaskan bioteknologi beserta penghasilan dan aplikasi dalam bidang kesihatan. Kursus ini juga membincangkan aspek asas dalam farmasi nuklear yang meliputi sifat radiofarmaseutikal, produk dan aplikasinya dan operasi farmasi nuklear.

Bacaan Asas

Crommelin, D.J.A. dan Sindelar, R.D. 2002. *Pharmaceutical Biotechnology: An Introduction for Pharmacist and Pharmaceutical Scientists*. Ed. Ke-2, London: Taylor and Francis.

Groves, M.J. 2006. *Pharmaceutical Biotechnology*. Ed. Ke-2, London: Taylor and Francis.

Francis, G.E. dan Delgado, C. 2000. *Drug targeting : strategies, principles, and applications*. New Jersey: Humana Press.

Boehncke, W.-H. dan Radeke, H.H. 2007. *Biologics in General Medicine*. Berlin Springer.

Kowalsky R.J. dan Falen S.W. 2011. *Radiopharmaceuticals in Nuclear Pharmacy and Nuclear Medicine*. Washington: American Pharmacists Association.

NFNF4134 Projek Penyelidikan II

Kursus ini adalah lanjutan daripada kursus NFNF3582. Dalam kursus ini, pelajar didedahkan kepada prinsip-prinsip untuk merangka dan menjalankan projek penyelidikan, menganalisis dan mentafsir data serta penulisan disertasi. Jenis penyelidikan yang dilakukan adalah kajian makmal, kajiselidik serta tinjauan sistemati dan analisis meta. Aktiviti kursus adalah pembentangan cadangan penyelidikan, penulisan disertasi, pembentangan hasil dan ujian lisan. Penilaian berterusan dilakukan sepanjang sesi.

Bacaan Asas

Buku berkaitan bidang yang dikaji.

Jurnal berkaitan bidang yang dikaji.

Panduan penulisan tesis Gaya UKM. Edisi Semak 2010. Bangi: Pusat Pengajian Siswazah, Universiti Kebangsaan Malaysia.

NFNF4712 Farmasi Industri

Kursus ini memperkenalkan keperluan yang perlu dipatuhi di dalam pengeluaran industri farmaseutikal serta membincangkan operasi pengeluaran serta ujian yang mematuhi keperluan farmakopia. Pelajar juga akan didedahkan dengan pelbagai piawai antarabangsa yang diperlukan untuk memasarkan produk farmaseutikal.

Bacaan Asas

Khar, KR, Vyas, SP, Ahmad, FJ, Jain, GK.(eds). 2013.Lachman/Lieberman's The Theory and Practice of Industrial Pharmacy. 4th. Ed. New Delhi: CBS Publishers & Distributors.

Taylor, KMG, Aulton, ME (eds.). 2021. Aulton's Pharmaceutics: The Design and Manufacture of Medicines Ed. Ke-6. Amsterdam: Elsevier.

PIC/S Secretariat. 2023. Guide to Good Manufacturing Practice for Medicinal Products, Part I. Geneva: Pharmaceutical Inspection Convention Pharmaceutical Inspection Co-Operation Scheme

British Pharmacopoeia Commission 2023. British Pharmacopoeia 2024. TSO London.

NFNF4812 Jaminan Kualiti Ubat Herba

Kursus ini bertujuan mendedahkan pelajar kepada pengajian multi-bidang dan jaminan kualiti berkaitan ubat-ubatan dari sumber semula jadi. Topik pengajian merangkumi pelbagai aspek jaminan dan kawalan kualiti berkaitan dadah mentah (crude drug), sediaan dan produk herba, termasuk peraturan, proses pembuatan dan pemiawaian produk herba, dan pelbagai ujian kawalan kualiti, keselamatan dan keberkesanan.

Bacaan Asas

British Pharmacopoeia. 2019. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Guidelines on Good Manufacturing Practice for Traditional Medicines and Health Supplements. 2008. Kuala Lumpur: Ministry of Health, Malaysia.

Heinrich, M.; Barnes, J.; Gibbons, S. & Williamson, E.M. 2012. *Fundamentals of Pharmacognosy & Phytotherapy*. Edisi ke-2. London : Churchill Livingstone.

List P.H. & Schmidt P.C. 1990. *Phytopharmaceutical Technology*. Boca Raton: CRC Press.

WHO. 2011. *Quality control methods for herbal materials.* Geneva: World Health Organization.

NFNF4912 Farmasi Kesihatan Umum

Selain menyumbang kepada kesihatan individu, ahli farmasi juga mempunyai peranan dalam meningkatkan kesihatan komuniti dan populasi yang lebih luas. Kursus ini mengandungi topik-topik yang berkaitan dengan peranan ahli farmasi dalam kesihatan Pelajar akan diajar tentang teori-teori atau model berkenaan aspek kemanusiaan dan sosial dalam pengubatan, kepentingan serta impaknya terhadap masyarakat dan sistem kesihatan nasional. Pendedahan terhadap polisi-polisi kerajaan berkenaan pengurusan kesihatan dan sistem kesihatan nasional juga ditekankan di sini.

Bacaan Asas

Krska, J. 2011. Pharmacy in Public Health. Pharmaceutical Press.

Levin, B., Hurd, P. & Hanson, A. 2018. Introduction to Public Health in Pharmacy. Ed. Ke-2. Oxford University Press.

Rickles, N., Wertheimer, A. & Schommer, J. 2016. Social and Behavioural Aspects of Pharmacy Practice. Ed. Ke-2. Kendall Hunt Publishing.

Truong, H., Bresette, J. & Sellers, J. 2010. The Pharmacist in Public Health: Education, Application and Opportunities. American Pharmacists Association.

NFNF4916 Klerksyip Perkhidmatan Farmasi Khusus

Kursus ini bertujuan untuk melengkapkan pengetahuan teori daripada kursus-kursus perkhidmatan farmasi terkhusus terdahulu. Kursus ini mengandungi sesi pembelajaran secara pengalaman melalui kitaran klerksyip di pelbagai jenis perkhidmatan farmasi terkhusus seperti farmasi bekalan wad, pemakanan parenteral dan admikstur intravena, penyediaan sitotoksik dan farmasi onkologi, maklumat ubat dan racun, pendidikan pesakit dan awam, dan farmakokinetik klinikal. Pelajar akan mengaplikasikan pengetahuan teori pada persekitaran kerja sebenar yang akan dipantau oleh preseptor lapangan.

Bacaan Asas

DiPiro, D. et al. 2013. *Pharmacotherapy: A Pathophysiologic Approach*, 10e. USA: McGraw-Hill Education

Zeind C.S and Carvalho M.G. 2017. *Applied Therapeutics (Koda Kimble and Youngs Applied Therapeutics)*. LWW; Eleventh, North American edition.

Winder, P.B. 2017. *Winter's Basic Clinical Pharmacokinetics Sixth Edition*. LWW; Sixth edition.

Drug Information Handbook: A Comprehensive Resource for all Clinicians and Healthcare Professionals (Lexicomp's Drug Reference Handbooks). 27th Edition. Lexi-Comp Inc.

NFNF4143 Latihan Industri Farmaseutikal

Kursus ini melibatkan penempatan pelajar untuk latihan amali pada semester III tahun 3, untuk tempoh selama 6 minggu. Ia bertujuan membolehkan pelajar mendapat pengalaman amali dan kefahaman yang sewajarnya dalam beberapa kerjaya seorang ahli farmasi. Pelajar ditempatkan di tempat-tempat latihan terpilih seperti hospital kerajaan dan swasta, pengilangan farmaseutikal dan kosmetik, farmasi komuniti, pusat penyelidikan dan badan regulatori.

Bacaan Asas

Buku panduan dan log Latihan Industri Farmaseutikal, Fakulti Farmasi UKM.

Lokesh Choudhary. 2007. Industrial training and education. New Delhi, India: Mittal Publications.

John Coniglio.2010. General Industry Safety Basics. Bloomington: Xlibris Corporation

NFNF4925 Klerksyip Pengurusan Ubat dan Farmasi Komuniti

Kursus ini akan melatih pelajar tentang fungsi dan tanggung jawab ahli farmasi di penempatan luar bandar dan komuniti. Pelajar akan menyampaikan penjagaan pesakit terselia secara terus melalui program tinjauan ubat-ubatan di rumah dan promosi penggunaan ubat-ubatan secara berkualiti. Pelajar juga akan belajar secara pengalaman dalam pengendalian dan pengurusan farmasi komuniti.

Bacaan Asas

Rantucci, M.J. 2007. Pharmacists Talking with Patients. A Guide to Patient Counselling. Ed. Ke 2. Lippincott Williams & Wilkins.

Herfindal, E.T. 2000. Textbook of therapeutics: drug and disease management Ed. Ke-7. Baltimore: Williams & Wilkins.

Young, L. Y. & Koda-Kimble, M. A. 2017 Applied therapeutics: The clinical use of drugs. 11thedn. Vancouver: Applied Therapeutics.

Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice:The Patient-Centered Approach to Medication Management. 3rd edn. New York: Mc Graw-Hill.

Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists: A basis for clinical pharmacy. 3rd edn. London: Chapman & Hall.

NFNF4945 Klerksyip Farmasi Klinikal dan Farmakoterapeutik

Kursus ini bertujuan untuk melatih pelajar secara pembelajaran berasaskan pengalaman supaya pelajar dapat mengaplikasikan pengetahuan farmakologi, farmaseutik, patofisiologi, terapeutik, maklumat ubat, keselamatan ubat, kemahiran komunikasi dan pemikiran kritis, dalam pengurusan pesakit. Pelajar akan berinteraksi bersama-sama ahli kesihatan lain dalam memberikan penjagaan berpusatkan pesakit.

Bacaan Asas

DiPiro, D. et al. 2013. *Pharmacotherapy: A Pathophysiologic Approach, 10e*. USA: McGraw-Hill Education

Zeind C.S and Carvalho M.G. 2017. *Applied Therapeutics (Koda Kimble and Youngs Applied Therapeutics)*. LWW; Eleventh, North American edition.

Winder, P.B. 2017. *Winter's Basic Clinical Pharmacokinetics Sixth Edition*. LWW; Sixth edition.

Drug Information Handbook: A Comprehensive Resource for all Clinicians and Healthcare Professionals (Lexicomp's Drug Reference Handbooks). 27th Edition. Lexi-Comp Inc.

Kursus-kursus Elektif

NFNF1512 Farmasi dan Kelestarian Alam Sekitar

Kursus ini bertujuan untuk membina kesedaran tentang penyakit yang berkaitan dengan perubahan iklim dan untuk menggalakkan amalan penjagaan kesihatan yang mampan, termasuk pendidikan pesakit tentang kesan farmaseutikal terhadap alam sekitar. Ia memberi tumpuan kepada hubungan antara perubahan iklim, kelestarian dan farmaseutikal. Pelajar akan didedahkan kepada kesan farmaseutikal terhadap alam sekitar bermula daripada pembangunan dadah hingga pelupusan. Diharapkan kursus ini akan memupuk kesedaran tentang isu-isu ini dan para pelajar akan dapat menggalakkan pengeluaran dan pelupusan farmaseutikal yang lebih 'hijau' apabila mereka bekerja sebagai ahli profesional penjagaan kesihatan pada masa akan datang.

Bacaan Asas

Ghosh, S., Sinha, J.K., Ghosh, S., Vashisth, K., Han, S., & Bhaskar, R. 2023. Microplastics as an emerging threat to the global environment and human health. *Sustainability*. 15(14):10821.

Roy, C. 2021. The pharmacist's role in climate change: a call to action. Canadian Pharmacists Journal: CPJ. 154(2):74.

Sanusi, I.O., Olutona, G.O., Wawata, I.G., & Onohuean, H. 2023. Occurrence, environmental impact and fate of pharmaceuticals in groundwater and surface water: a critical review. *Environmental Science and Pollution Research*. 30(39):90595-90614.

Witte, K. & Müller, M. 2025. Sustainable Pharmacy–a guiding principle. *Sustainable Chemistry and Pharmacy*. 44:101897.

World Health Organization. 2023. Climate change and health. Available: https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health.

NFNF1522 Kemahiran Berorganisasi dan Kebajikan Masyarakat dalam Farmasi

Kursus ini dijalankan melalui projek yang berasaskan keusahawanan sosial. Pelajar akan didedahkan kepada prinsip berorganisasi dalam menjalankan sesebuah projek, serta kefahaman tentang konsep keusahawanan sosial. Pelajar akan dibimbing untuk menjalankan projek yang memberi manfaat kepada masyarakat melalui aktiviti-aktiviti yang dapat membantu ekonomi golongan yang memerlukan.

Bacaan Asas

Beugre, C. 2017. *Social Entrepreneurship: Managing the Creation of Social Value, 1st Edition*. New York: Routledge Taylor & Francis Group.

Dasar Keusahawanan Nasional 2030. 2019. Kementerian Pembangunan Usahawan.

Kickul, J. dan Lyons, T.S. 2016. *Understanding Social Entrepreneurship: The Relentless Pursuit of Mission in an Ever Changing World, 2nd Edition*. New York: Routledge Taylor & Francis Group.

Muhamad, N.S. dan Adham, K.A. 2013. *Social Entrepreneurship as Transformative Service for Societal Well-Being*. Jurnal Pengurusan. 39(2013): 111-118

Wheelan, S. 2015. *Creating Effective Teams: A Guide for Members and Leaders, 5th Edition*. SAGE Publications.

NFNF1562 Sains Kosmetik

Kandungan kursus ini meliputi perbincangan tentang pemilihan bahan mentah, sediaan-sediaan kosmetik seperti sediaan penjagaan kulit, rambut, kosmetik berwarna, deodoran dan anti-perspiran, bayi, gigi dan wangian. Jaminan mutu produk dan aspek kawalan dan regulatori juga dibincangkan. Kursus ini meliputi sesi kuliah dan amali.

Bacaan Asas

King, D. 2013. *In Synchrony with the Heavens: Studies in Astronomical Timekeeping and Instrumentation in Medieval Islamic Civilization*. Boston: Brill.

Swarbrick , J. 2006. *Encyclopedia of Pharmaceutical Technology, Edisi ke-3*. London: Informa Healthcare

Aulton, M.E. 2017. *Pharmaceutics, the Design and Manufacture of Medicines, 5th Edition*. Amsterdam: Elsevier

Draelos, Z.D. & Thaman, L.A. 2006. *Cosmetic Formulation of Skin Care Products (Cosmetic Science and Technology Series Vol. 30)*. New York: Taylor and Francis group, Marcel Dekker.

Draelos, Z.D. 2011. *Cosmetics And Dermatological Problems And Solutions: A Problem Based Approach*. Ed ke-3. New York: Informa Healthcare.

Guidelines for Control of Cosmetic Products in Malaysia. 2009 (rev). Agensi Regulatori Farmasi Negara. Kementerian Kesihatan Malaysia.

Control of Drug & Cosmetic Regulation. 2007. Agensi Regulatori Farmasi Negara, Kementerian Kesihatan Malaysia

NFNF2512 Farmasi Veterinar

Kursus ini mengandungi sesi kuliah dan tugasan. Pelajar-pelajar akan dilatih dalam pelbagai aspek berkaitan penyakit umum veterinar dan penggunaan ubat yang berkaitan. Pelajar-pelajar juga akan diberikan tugasan berkaitan farmasi veterinar untuk memperkayakan pengalaman melalui aktiviti-aktiviti yang dijalankan.

Bacaan Asas

Kayne, SB & Jepson, MH. (pnyt.). 2004. Veterinary Pharmacy. London:Pharmaceutical Press.

Khan, CM. 2010. The Merck Veterinary Manual. Merck &Co., Inc. and Merial Limited.

Papich, MG. 2010. Saunders Handbook of Veterinary Drugs: Small and Large Animal. Philadelphia: Elsevier-Health Sciences Division.

Walter, HH. (pytg). 2008. Handbook of Veterinary Pharmacology. Arnes: Iowa State University Press.

NFNF2582 Dadah dalam Sukan

Kursus ini terdiri daripada kuliah dan pembelajaran snediri. Pelajar akan didedahkan kepada pelbagai aspek penggunaan dan penyalahgunaan dadah dalam sukan. Penekanan diberikan kepada peranan ahli farmasi dalam doping, analisis dadah, kaunseling mengenai penggunaan dadah dan ubat-ubatan. Pelajar akan diajar mengenai farmakologi dan mekanisme tindakan ubat melalui perspektif sukan. Pelajar juga akan diajar mengenai rawatan dan pengurusan atlet dengan penyakit tertentu. Kaedah pengambilan dadah dan doping akan diajar juga. Selain itu, pelajar akan didedahkan kepada undang-undang dan pengawalseliaan antarabangsa doping dadah mengikut Majlis Olimpik Antarabangsa (OIC) dan Agensi Anti Doping Sedunia (WADA). Penilaian berterusan akan dilakukan sepanjang kursus.

Bacaan Asas

Cuppett, M. & Walsh, K.M. 2017. General Medical Conditions in the Athlete. USA: Elsevier Mosby.

Garrett, W.E., Kirkendall, D.T. & Squire, D.L. 2001. Principles and Practice of Primary Care Sports Medicine. Philadelphia: Lippincott Williams & Wilkins.

Harries, M., McLatchie, G., Williams, C. & King, J. 2000. ABC of Sport Medicine. Ed. Ke-2. U.K.: BMJ Books.

Mottram, D.R. 2018. Drugs in Sport. Ed. Ke-3. London: Routledge.

Waddington, I. 2000. Sport, Health & Drugs – A Critical Sociological Perspective. London: E & FN Spon.

NFNF3512 Penyalahgunaan dan Penagihan Dadah

Dalam kursus ini, pelajar akan diperkenalkan terhadap patofisiologi ketagihan dadah, isu sosial, masalah kesihatan dan aspek perundangan penyalahgunaan dadah. Klasifikasi dan farmakologi dadah/bahan berkaitan akan dibincangkan dengan terperinci. Pelajar juga akan didedahkan kepada pelbagai model rawatan ketagihan dadah.

Bacaan Asas

Ross, D., Kincaid, H., Spurrett, D. & Collins, P. (pytg.). 2010. What is addiction? Cambridge: MIT Press.

Grilly, D.M. & Salamone, J. 2012. Drugs, Brain, and Behavior. Ed. ke 6. Boston: Pearson.

McKim, W.A. & Hancock, S.D. 2013. Drugs and Behavior: An Introduction to Behavioral Pharmacology Ed. ke 7. New Jersey: Pearson.
Dangerous Drugs Act 1952 (Act 234), Drug Dependants (Treatment And Rehabilitation) Act 1983 (Act 283) , Regulations & Rules. International Law Book Services.

NFNF3562 Farmasi untuk Masyarakat

Kursus ini bertujuan untuk meningkatkan kesedaran dan melatih keterlibatan pelajar dalam program perkhidmatan kesihatan berasaskan kesedaran farmasi. Pelajar akan didedahkan kepada kepentingan perkhidmatan kesihatan farmasi dan tatacara menjalankan perkhidmatan yang berkenaan. Kursus ini juga akan memupuk pelajar untuk memahami budaya masyarakat setempat dan menghayati tanggungjawab sosial kepada komuniti. Kursus ini juga akan mendedahkan pelajar tentang prinsip berorganisasi seperti merancang, melaksana, memimpin program, bekerjasama dan mengambil peranan secara aktif dalam kumpulan.

Bacaan Asas

Shaharuddin Ahmad et al. 2010. Mengurus Persatuan: Proses dan Kemahiran. Bangi: Penerbit UKM.
Saran KG, Prabha S, Kamela S (penyt).2012. The Power of Engagement - A Selection of inspiring Community Engaged Initiatives. UKM Press: Malaysia.
Lussier RN, Achua CF. 2009. Effective leadership (international student edition). Canada: Thomson South Western Publishing.
Thomson N. 2018. Effective communication: A guide for the people professions. New York: Palgrave Mac Millan.
Adair J. 2013. Decision making and problem solving strategies. London: Kogan Page.
Rantucci, M.J. 2007. Pharmacists Talking with Patients. A Guide to Patient Counselling. Ed. Ke 2. LippincottWilliams & Wilkins.

NFNF4522 Pengurusan Perniagaan Farmasi

Objektif utama kursus ini adalah supaya pelajar berkebolehan untuk merancang, membangun dan mengoperasi sebuah perniagaan farmasi secara kreatif dan berinovasi. Kursus disampaikan melalui kuliah, perbincangan dalam kelas dengan menggunakan kajian kes merangkumi pengurusan operasi, sumber manusia, kewangan, barangan dan perkhidmatan serta nilai tambah perkhidmatan. Pengurusan risiko dalam praktis farmasi serta aplikasi pengurusan dalam situasi tertentu dalam amalan farmasi turut disampaikan kepada para pelajar. Di samping itu, pelajar akan bekerja dalam kumpulan kecil untuk membangunkan suatu model perniagaan farmasi di mana pelajar akan membina strategi pemasaran, membina laman sesawang dan menyediakan rancangan usahaniaga untuk dibentangkan bagi tujuan bicara tuntas. Kursus ini turut memberi fokus kepada pembelajaran melalui pengalaman di mana para pelajar akan menjalankan kajian kes berdasarkan amalan farmasi tempatan merangkumi farmasi komuniti perseorangan atau berantai.

Bacaan asas

Sloan, F.A. & Hsien, C.R. 2007. Pharmaceutical Innovation: Incentives, Competition and Cost-Benefit Analysis in International Perspective. New York: Cambridge University Press.

Desselle, S. P., Zgarrick, D.P. & Alston, G.L. 2012. Pharmacy Management. 3rd ed. McGraw-Hill Companies, United States.

Tootelian, D.H., Wertheimer, A.I. & Mikhailitchenko, A. 2012. Essentials of Pharmacy Management. 2nd ed. Pharmaceutical Press, Great Britain

Bradley-Baker, L.R. 2012. Getting Started as a Pharmacy Manager. American Pharmacists Association, United States.

Chisholm-Burns, M.A., Vaillancourt, A.M. & Shepherd, M. 2014. Pharmacy Management, Leadership, Marketing & Finance. 2nd ed. Jones & Bartlett Learning, United States.

NFNF4532 Pemakanan dalam Amalan Farmasi Komuniti

Pelajar akan didedahkan secara umum kepada aspek nutrisi yang berguna dalam amalan farmasi komuniti. Topik-topik yang diajar termasuklah konsep makanan dan nutrisi; pengenalan kepada komposisi tubuh dan antropometri; diet seimbang; cadangan keperluan diet dan piramid makanan; substrat metabolism dan utilisasi; kesimbangan cecair dan elektrolit; kekurangan nutrisi; nutrisi bagi bayi, orang tua, perempuan hamil dan menyusukan; masalah obesiti, berat badan berlebihan dan sistem imun; nutrisi dalam sukan; jadual komposisi makanan dan label makanan; vitamin, mineral dan suplemen; makanan kesihatan; makanan terubahsuai genetik; interaksi antara makanan dan ubat; bahan kimia tambahan dalam makanan; regulasi dan undang-undang makanan. Melalui kursus ini, pelajar akan lebih sedia untuk berkhidmat sebagai ahli farmasi komuniti yang memberi pengetahuan asas tentang makanan dan produk kesihatan di farmasi komuniti.

Bacaan Asas

Aluko RE 2012. Functional foods and nutraceuticals. NY : Springer Daries H. 2012. Nutrition for sport and exercise: a practical guide. Chichester, West Sussex: Wiley-Blackwell.

Enna SJ, Norton S. 2012. Herbal supplements and the brain: understanding their health benefits and hazards. NJ, USA : FT Press.

Meckling, K.A. 2007. Nutrient-Drug Interactions. Florida, USA: Taylor & Francis Gp.

Wiffen P, Mitchell M, Snelling M, Stoner N (Eds) 2012. Oxford handbook of clinical pharmacy Oxford: Oxford University Press. DiPiro, J.T., Talbert, R.L., Yee, G.C.,

PERATURAN-PERATURAN UNIVERSITI KEBANGSAAN MALAYSIA (PENGAJIAN SARJANA MUDA 2024)

Peraturan terkini boleh dirujuk di laman web rasmi UKM

SYARAT TAMBAHAN PROGRAM SARJANA MUDA FARMASI DENGAN KEPUJIAN FAKULTI FARMASI

1. Syarat Penerimaan Masuk

1.1. Keperluan Pelajaran Asas

1.1.1. Sijil Pelajaran Asas

Calon mestilah lulus peperiksaan Sijil Pelajaran Malaysia (SPM) atau peperiksaan yang setaraf dengannya dengan mendapat kepujian dalam mata pelajaran Bahasa Malaysia/Bahasa Melayu atau kepujian Bahasa Malaysia/Bahasa Melayu Kertas Julai, mendapat kepujian dalam mata pelajaran Bahasa Inggeris dan lulus mata pelajaran Sejarah. Calon juga mestilah mendapat sekurang-kurangnya Gred B/4B dalam mata pelajaran Kimia, Biologi, Fizik, Matematik/ Matematik T dan satu subjek lain.

atau:

Bagi calon luar negara, calon hendaklah telah melengkapkan 12 tahun pembelajaran di peringkat sekolah rendah dan sekolah menengah atas. Calon juga mestilah mendapat sekurang-kurangnya Gred B dalam mata pelajaran Kimia, Biologi, Fizik, Matematik

dan:

1.1.2. Sijil Tinggi Persekolahan Malaysia (STPM)

1.1.2.1. Calon mestilah lulus peperiksaan Sijil Tinggi Persekolahan Malaysia (STPM) dengan mendapat sekurang-kurangnya PNGK 3.50 dan mendapat sekurang-kurangnya Gred B (NGMP 3.00) dalam mata pelajaran Kimia, Biologi dan Fizik/Matematik/ Matematik T

atau:

1.1.3. Sijil Matrikulasi/ Asasi

1.1.3.1. Calon mestilah lulus Matrikulasi/ Asasi dengan mendapat sekurang-kurangnya PNGK 3.50 dan mendapat sekurang-kurangnya gred B (NGMP 3.00) dalam mata pelajaran Kimia, Biologi dan Fizik/Matematik;

atau:

1.1.4. Diploma/Setaraf

1.1.4.1. Lulus peperiksaan STPM tahun sebelumnya dengan mendapat sekurang-kurangnya PNGK 3.50 dan mendapat sekurang-kurangnya Gred B (NGMP 3.00) dalam mata pelajaran Kimia, Biologi dan Fizik/Matematik.

atau:

1.1.4.2. Lulus Sijil Matrikulasi/Asasi tahun sebelumnya dengan mendapat sekurang-kurangnya dengan mendapat sekurang-kurangnya PNGK 3.50 dan mendapat sekurang-kurangnya gred B (NGMP 3.00) dalam matapelajaran Kimia, Biologi dan Fizik/Matematik;

dan

1.1.4.3. Memiliki Diploma Farmasi yang diiktiraf oleh Universiti dan Kerajaan Malaysia dan mendapat sekurang-kurangnya PNGK 3.50;

atau

1.1.4.4. Memiliki Diploma Sains yang diiktiraf oleh Universiti dan Kerajaan Malaysia dengan mendapat sekurang-kurangnya PNGK 3.75

atau

1.1.4.5. Memiliki sijil A-Level dengan mendapat sekurang-kurangnya Gred B dalam mata pelajaran berikut:

- Biologi
- Kimia
- Matematik/ Fizik

atau

1.1.4.6. Memiliki Diploma International Baccalaureate (IB) dengan skor minimum 30 dan sekurang-kurangnya skor 5 pada peringkat High Level (HL) untuk mata pelajaran berikut:

- Biologi
- Kimia
- Matematik; dan
- Lulus mata pelajaran lain pada peringkat Standard Level (SL)

atau:

1.1.4.7. Lulus Ijazah Pertama Dalam Sains (dalam bidang yang berkaitan) dengan mendapat sekurang-kurang PNGK 3.00

atau:

1.1.4.8. Lulus Senior School Certificate/ Tawjihiya/kelayakan antarabangsa setaraf seperti yang telah ditetapkan oleh Lembaga Farmasi Malaysia dengan mendapat agregat 80% atau setara dan sekurang-kurangnya 80% atau setara untuk mata pelajaran berikut:

- Biologi
- Kimia
- Mathematik/ Fizik

1.1.5. Kelayakan lain

Lulus ujian/temuduga yang ditetapkan oleh fakulti.

dan:

1.1.6. Malaysian University English Test (MUET).

1.1.6.1. Calon–calon mestilah mendapat sekurang kurangnya Tahap 4 (Band 4) (untuk tahun 2021 dan ke atas) atau Tahap 3 (Band 3.0) (untuk tahun 2020) dalam Malaysian University English Test (MUET).

1.1.6.2. Bagi calon luar negara atau berkelayakan luar negara hendaklah memenuhi syarat minimum keperluan Bahasa Inggeris MUET Tahap 4 (Band 4) (untuk tahun 2021 dan ke atas) atau Tahap 3 (Band 3.0) (untuk tahun 2020) atau IELTS Band 5.5 atau TOEFL IBT Band 46 atau setara dengannya.

1.1.6.3. Calon boleh diberi pengecualian kompetensi Bahasa Inggeris seperti yang telah ditetapkan oleh program atau dalam standard program daripada Agensi Kelayakan Malaysia (MQA) sekiranya:

1.1.6.3.1. Calon tersebut adalah calon luar negara yang berasal daripada negara yang menggunakan Bahasa Inggeris sebagai bahasa rasmi atau:

1.1.6.3.2. Calon menggunakan kelayakan akademik dari institusi di luar negara yang menggunakan Bahasa Inggeris sebagai bahasa pengantar sepenuhnya.

1.2. Syarat-syarat Masuk Yang Lain adalah seperti di Peraturan-Peraturan Universiti Kebangsaan Malaysia 2024.

2. Struktur Pengajian

Tempoh Yang Dibenarkan

Pelajar mestilah mengikuti kursus Ijazah Sarjana Muda Farmasi dengan Kepujian selama sekurang-kurangnya empat tahun atau lapan (8) semester dan tidak lebih daripada dua belas (12) semester dikira dari tarikh pendaftaran pertama untuk mendapatkan ijazah sarjana muda bagi program farmasi. Pengajian Semester ke-3 tidak diambilkira bagi menentukan jumlah semester maksimum pengajian yang dibenarkan.

3. Sistem Penilaian dan Purata Nilai Gred (PNG)

3.1 Pelajar dibenarkan mengulang sesuatu kursus yang gagal sebanyak dua (2) kali sahaja dalam tempoh pengajiannya.

3.2 Pelajar perlu lulus sekurang-kurangnya 50% bagi setiap komponen penilaian berterusan dan peperiksaan akhir.

4. Syarat-syarat Kelayakan Meneruskan Pengajian

4.1. Seseorang pelajar dianggap Gagal dan diberhentikan jika mendapat gred taraf gagal (C-, D+, D atau E) bagi kursus teras program ulangan kali yang kedua.

5. Peruntukan-peruntukan Lain

5.1. Seseorang pelajar tidak akan dibenarkan mengambil peperiksaan sesuatu kursus sekiranya Dekan telah memperakui bahawa pelajar berkenaan:

5.1.1. Telah tidak mengikuti sekurang-kurangnya 80% daripada keperluan kursus tersebut (kehadiran ke sesi pembelajaran interaktif dan sesi penaksiran) seperti yang ditetapkan oleh Fakulti.

5.1.2. Telah memplagiat atau menipu apa-apa bentuk penilaian (seminar, laporan, penulisan kes, buku log) yang ditetapkan dalam sesuatu kursus.

5.1.3. Mempunyai sikap dan perlakuan yang tidak bersesuaian sebagai seorang pelajar farmasi dan menjejaskan profesyen farmasi.

Undergraduate Study Guide

Faculty of Pharmacy

Academic Session 2025 – 2026

Undergraduate Studies Program
Faculty of Pharmacy

Bachelor of Pharmacy Program (Honors)

The course administration for this program is entirely managed by the relevant department. Pharmacy students are required to take the following prescribed courses:

a. University Mandatory Courses
b. Core Courses
c. Elective Courses

University Mandatory Courses

The Faculty of Pharmacy has outlined that students must take and pass 22 units of Citra Education courses as prescribed by the Senate (10 units of Compulsory Citra and 12 units of *Citra Rentas* in domains C1-C6).

1. Citra Education Courses are divided into two (2) components and are subject to changes from Citra UKM as follows:

   1.1 Compulsory Citra - The course standard is CW and this course is offered by the CITRA UKM. Students must pass and complete 10 credits. The University Compulsory Courses are:

   For Citizen students

   LMCW1022 – Fundamentals of Entrepreneurship & Innovation
   LMCW2152 – Integrity and Anti-corruption
   LMCW2143 – Philosophy and Current Issues
   LMCW2153 – Appreciation of Ethics and Civilization

   For Non-Citizen students

   LMCW1022 – Fundamentals of Entrepreneurship & Innovation
   LMCW2193 – Malay Communication 2

LMCW2152 – Integrity and Anti-corruption
LMCW2143 – Philosophy and Current Issues OR
LMCW2153 – Appreciation of Ethics and Civilization

1.2. The *Citra Rentas* according to domains - the course status are C1, C2, C3, C4, C5, and C6 as per the Citra Domain. These courses are offered by CITRA UKM and the Faculty. Students are required to pass and complete 12 units of LMXX-coded courses offered by the Citra Centre University.

2. The list of *Citra Rentas* Courses offered based on Citra Domains (C1-C6) is as listed in the Citra course guidebook published by CITRA UKM.

Faculty Core Courses (TF)

The Faculty of Pharmacy has designated only three (3)/two (2)* courses as Faculty Core Courses, carrying a total of five (5) credit units as the following:

MUET Band	English courses	Credit unit
5&6	LMCE 1082 Page to Stage LMCE 2103 Advanced Communication Project	5 credit unit
4	LMCE 1072 Academic Literacy LMCE 2092 Speak to Persuade LMCE 3071 Professional Communication	5 credit unit
3	LMCE 1062 Academic Interactions LMCE 2082 Pro-Talk English LMCE 3061 Corporate Storytelling	5 credit unit

*Course selection is based on the student's MUET results. All these courses are counted as 5-unit Faculty Compulsory Courses.

Programme Core Courses (TP)

The Faculty of Pharmacy has designated specialization courses for the program in the field of pharmacy.

Total credit units for the Bachelor of Pharmacy Program (Honors) courses are as follows.

Component		**Unit**
Mandatory University (WU)	Mandatory Citra (CW)	10
	Citra Rentas (C1-C6) (CR)	12
Core (TR)	Faculty Core (TF) English Language Course	5
	Programme Core (TP)	102
	Dissertation Thesis/ Final Project/ Scholarly Project Paper (TK)	6
	Industrial Training (LI)	3
Elective (EF)	Elective in Area of Specialization (EP)	4
	Overall	**142**

Bachelor of Pharmacy with Honours

Introduction

The Bachelor of Pharmacy with Honours program offered by the Faculty of Pharmacy, Universiti Kebangsaan Malaysia, aims to train full-time prospective healthcare professionals who will hold the title of pharmacist.

Pharmacists need to acquire education and scientific skills at the undergraduate level before they can register with the Pharmacy Board of Malaysia. Registered pharmacists are qualified to handle therapeutic agents and controlled drugs during the processes of manufacturing, marketing, distribution, storage, control, administration, and use in the treatment of diseases.

In this program, students will be exposed to various aspects of studies related to the fields of pharmaceutical chemistry, pharmaceuticals, pharmacology, pharmacy practice, and clinical pharmacy. Students will also be given exposure to practical skills in community pharmacy, pharmaceutical care in hospitals, and the pharmaceutical industry. Furthermore, the program places strong emphasis on professional training as the core for the development of specialized groups characterized by competence and high ethics.

Objectives

To produce graduates who can comprehend the fundamentals of diseases and therapeutic approaches in an effort to enhance the level of excellence in pharmacy services as one of the integrated components of healthcare for the public. Graduates also possess pure ethics and professional responsibility to fulfill the demands of religion and the nation.

Curriculum Components and Total Units

This program spans four (4) years of study. The total units required for graduation are 142 units, including 10 units of Mandatory Citra (CW) courses, 16 units of elective courses encompassing *Citra Rentas (CR, 12 units)* courses offered by Citra Centre University in domains C1-C6 and Elective in Area of Specialization (EP, 4 units) courses. Five (5) units of Faculty Core (TF) courses (English Language course), 102 units of Programme Core (TP), 6 units of Dissertation Thesis (TK) and 3 units of Industrial Training (LI). Upon meeting all graduation requirements, students will be awarded the Bachelor of Pharmacy with Honours [BPharm (Hons)].

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)
BACHELOR OF PHARMACY WITH HONORS PROGRAM

The Bachelor of Pharmacy with Honors program has the following Program Educational Objectives (PEOs):

PEO1: Pharmacists who possess knowledge, understanding, and cognitive, practical, digital, and numerical skills to solve problems in the field of pharmacy.

PEO2: Pharmacists who possess interpersonal skills, effective communication, leadership attributes, autonomy, and responsibility.

PEO3: Pharmacists who possess personal skills and an entrepreneurial mindset in solving problems related to the field of pharmacy.

PEO4: Pharmacists who are professional, act with integrity, and uphold ethical and moral values in the pharmacy profession.

PROGRAM LEARNING OUTCOMES (PLO)
BACHELOR OF PHARMACY WITH HONORS PROGRAM

The Bachelor of Pharmacy with Honors degree program at the Faculty of Pharmacy aims to produce graduates who are capable of:

PLO1: Demonstrate mastery of knowledge and advanced understanding related to the field of pharmacy comprehensively.
PLO2: Apply knowledge critically in resolving issues related to the field of pharmacy.
PLO3: Demonstrate practical skills in performing assessments and applying techniques related to the field of pharmacy.
PLO4: Demonstrate effective collaboration skills with diverse parties.
PLO5: Demonstrate effective verbal and non-verbal communication skills related to the field of pharmacy.
PLO6: Apply appropriate digital technology in performing tasks related to the field of pharmacy.
PLO7: Interpret numerical, qualitative, and graphical data in solving problems related to the field of pharmacy.
PLO8: Demonstrate autonomy, leadership, and responsibility in performing tasks related to the field of pharmacy
PLO9: Demonstrate personal skills and lifelong learning towards pharmacy professional development.
PLO10: Demonstrate creativity, innovation, and entrepreneurial skills in projects related to the field of pharmacy.
PLO11: Demonstrate ethics and professionalism in resolving complex issues related to the field of pharmacy.

PLO1 **:** Knowledge and Understanding
PLO2 **:** Cognitive Skills
PLO3 **:** Practical Skills
PLO4 **:** Interpersonal Skills
PLO5 **:** Communication skills
PLO6 **:** Digital Skills
PLO7 **:** Numerical Skills
PLO8 **:** Leadership, Autonomy and Responsibility
PLO9 **:** Personal Skills
PLO10 **:** Entrepreneurial
PLO11 **:** Ethics & Professionalism

List of courses
Bachelor of Pharmacy with Honours

Level 1000

Semester I

NFNF1613 Human Biochemistry
NFNF1612 Scientific Basis of Diseases
NFNF1713 Formulation Sciences
NFNF1813 Chemistry of Drugs
NFNF1912 Introduction to Pharmacy Profession
LMCE1062/ *Academic Interactions/*
LMCE1072/ *Academic Literacy/*
LMCE1082* */Page to Stage*
NFNFXXX2± Elective Course
LMCXXX2± *Citra Rentas* Courses

Semester II

NFNF1622 Microbiology
NFNF1623 Basic Pharmacology and Toxicology
NFNF1722 Rekabentuk dan Pembangunan Dos I
NFNF1822 Drug Design and Development
NFNF1922 Professional communication and patient education
LMCW1022 Fundamentals of Entrepreneurship & Innovation
LMCE2082/ *Pro Talk English/*
LMCE2092/ *Speak to Persuade/*
LMCE2103* *Advanced Communication Project*
NFNFXXX2/
LMCXXXX± Elective Course/*Citra Rentas* Courses
LMCXXXX2 *Citra Rentas* Courses

Level 2000

Semester I

NFNF2612 Immunology
NFNF2632 Pharmacology of the Peripheral Nervous System
NFNF2652 Pharmacotherapy Of Endocrine Disorders and Autacoids
NFNF2712 Dosage Design & Development II
NFNF2813 Pharmacopoeial Methods for Drug Analysis

NFNF2932	Traditional and Complementary Medicines
NFNF2912	Approach to Clinical Pharmacy
LMCW2143	Philosophy and Current Issues
LMCXXXX2	*Citra Rentas* Courses

Semester II

NFNF2623	Pharmacotherapy of Infection, Infestation & Immune Disorders
NFNF2622	Pharmacotherapy of Renal and Genitourinary Disorders
NFNF2722	Dosage Design & Development III
NFNF2823	Spectroscopic Techniques for Drug Analysis
NFNF2922	Legislation, ethics and policies in Pharmacy
LMCW2152	Integrity & Anti-Corruption
LMCW2153	Appreciation of Ethics and Civilization
NFNFXXX2/ LMCXXXX2[±]	Elective Course/*Citra Rentas* Courses

Level 3000

Semester I

NFNF3612	Pharmacotherapy of Central Nervous System Disorders
NFNF3613	Pharmacotherapy of Cardiovascular and Respiratory Disorders
NFNF3632	Statistics and Research Methodology
NFNF3812	Quality Assurance of Pharmaceutical
NFNF3912	Community Pharmacy Practice
NFNF3913	Specialised Pharmacy Services I
NFNF3932	Pharmaceutical Care of Special Population
NFNFXXX2/ LMCXXXX2[±]	Elective Course/*Citra Rentas* Courses

Semester II

NFNF3182	Research Project I
NFNF3622	Pharmacotherapy of Gastrointestinal Disorders
NFNF3642	Pharmacotherapy of Musculoskeletal and Integumentary Disorders
NFNF3662	Pharmacotherapy of Oncology and Haematology
NFNF3923	Specialised Pharmacy Services II
NFNF3922	Pharmacoepidemiology and Pharmacoeconomics

NFNF3722	Pharmaceutical Biotechnology and Radiopharmaceuticals
LMCE3061/ LMCE3071*	*Corporate Storytelling/ Professional Communication*
NFNFXXX2/ LMCXXXX±	Elective Course/*Citra Rentas* Courses

Level 4000

Semester I

NFNF4134	Research Project II
NFNF4712	Industrial Pharmacy
NFNF4812	Quality Assurance of Herbal Medicines
NFNF4912	Public Health Pharmacy
NFNF4916	Specialised Pharmacy Services Clerkship

Semester II

NFNF4143	Pharmaceutical Industrial Training
NFNF4925	Medicine Management and Community Pharmacy Clerkship
NFNF4945	Clinical Pharmacy and Pharmacotherapeutic Clerkship

*According to the requirements set for MUET

± 12 2 credits of Citra University courses, and 4 credits of departmental elective courses.

Elective Courses

As part of an effort to ensure that students receive education that prepares them for the workforce, elective courses following specific tracks have been introduced. Students are encouraged to take elective courses based on their individual preferences within three pharmacy-related fields: 1) Social and Humanitarian Pharmacy, 2) Community Pharmacy, and 3) Pharmaceutical Industry and Research. The guidelines for selecting elective courses according to the tracks are as follows:

Social Pharmacy and Humanity			
No.	**Course Code**	**Course name**	**Semester**
1.	NFNF1512	Pharmacy and Enviromental Sustainability	1
2.	NFNF1522	Organisational Skills and Community Service in Pharmacy	1
3.	NFNF3512	Drugs of Abuse and Addiction	1
4.	NFNF2582	Drugs in Sports	1
5.	NFNF3562	Pharmacy for Community	2
6.	NFNF2512	Farmasi Veterinar	1
Community Pharmacy			
No.	**Course Code**	**Course name**	**Semester**
1.	CMIE1213	Micro and Small Business Development	1
2.	CMIE2313	Social Entrepreneurship & Innovation	1
3.	CMIE3013	Product Innovation & Entrepreneurship I	1
4.	CMIE2123	Technopreneurship	2
5.	CMIE2423	Digital Marketing	2
6.	CMIE3023	Product Innovation & Entrepreneurship II	2

7.	NFNF4532	Nutrition in Community Pharmacy Practice	2
8.	NFNF4522	Pharmacy Business Administration	2
Pharmaceutical Industry and Research			
No.	**Course Code**	**Course name**	**Semester**
1.	NFNF1562	Cosmetic Sciences	2
2.	NFNF4522	Pharmacy Business Administration	2

***Registration for Citra University courses and CESMED courses is subject to changes by CITRA UKM/CESMED.**

ATTENTION:

1. Students are required to complete a minimum of 16 units of Elective Courses, consisting of 12 units of *Citra Rentas (CR)* in domains C1-C6 and 4 units of Elective in Area of Specialization (EP) (throughout their studies). Students are allowed to take Elective Courses as early as the 1000-level.

2. Students are still allowed to register for elective courses without following a specific track. However, elective course registration must follow the designated semester (semester 1 or 2).

Course Synopsis
Bachelor of Pharmacy with Honors Program

NFNF1612 Scientific Basis of Diseases

This course includes an introduction to the basic concepts of general pathology and diseases. The emphasis on the knowledge of terms in pathology, causes of disease, the pathogenesis of structural and functional changes, evolution and consequences of the disease in humans, will be emphasized. The course covers basic pathological cell injury, inflammatory processes, circulation disorders, degeneration and abnormalities of cell growth. Discussion of the relationship of various internal and external factors with various abnormalities of cells, tissues and organs will also be exposed to the students.

Basic Reading

Cross, S. 2018. Underwood's Pathology: A Clinical Approach. Ed. Ke-7. Elsevier

Damjanov, I. 2016. Pathology for the Health Professions. Ed. Ke-5. Elsevier.

Greene, R.J. & Harris, N.D. 2008. Pathology and Therapeutics for Pharmacists-A Basics for Clinical Pharmacy Practice, Ed. Ke-3. Pharmaceutical Press.

Harsh, M. 2015. Textbook of Pathology, Ed. Ke-7. New Delhi:Jaypee Brothers Medical.

Kumar, V. Cotran, Abbas, A.K., R.S. & Aste, J.C. 2017. Robbins Basic Pathology. Ed. Ke-10. Philadelphia: Saunders.

NFNF1613 Human Biochemistry

This course revisits structures and functions of cellular organelles. Protein structure, enzyme nomenclature, enzyme kinetics, enzyme inhibition and role of enzymes and vitamins in metabolism are also discussed. Emphasis is given on classification, structure, chemical properties, biosynthesis and metabolism of carbohydrates, lipids and amino acids. Basic genetic covers structures and functions of DNA and RNA as genetic materials, purine and pyrimidine metabolisms, storage and expression of genetic information which include transcription and translation.

Basic Reading

Ferrier, D.R. 2017. Lippincott's Illustrated Reviews: Biochemistry. Ed. Ke-7 Philadelphia : Lippincott Williams & Wilkins

Devlin, T.M. 2010. Textbook of Biochemistry with Clinical Correlations. Ed. Ke-7. New York: John Wiley & Sons.

Murray, R.K., Bender, D.A., Botham, K.M., Kennely, P.J. & Rodwell, V.W. & Weil, P.A. 2018. Harper's Illustrated Biochemistry. Ed. Ke-31. New York:McGraw-Hill Medical.

Lieberman, M. & Peet. A., 2017. Mark's Basic Medical Biochemistry: A Clinical Approach. Ed. Ke-5. Philadelphia: Wolters Kluwer.

Berg, J.M., Tymoczko, J.L. & Stryer, L. 2015. Biochemistry. Ed. Ke-8. New York : W.H. Freeman & Co Ltd.

NFNF1713 Formulation Sciences

This course aims to provide students with the skills to interpret medicine prescription through introduction to commonly used terms, abbreviations and symbols. Students will also be given the skills to perform pharmaceutical calculations that are essential to the development of formulations. Further discussions will be centred on the guidelines on Good Compounding Practice and Good Dispensing Practice. A major portion of the course will be dedicated to the extemporaneous compounding of several dosage forms, which includes the knowledge of excipients, compounding methods, labeling requirements, as well as containers and packaging materials. In addition to the theory, the students will be equipped with the compounding skills through practical sessions.

Basic Reading

Shahudin, S., Rabi, R., Ng, SF. And Thomas PT. 2011. *Pharmacy Practice: Guide to Compounding and Dispensing*. Malaysia: Penerbit UKM

Ansel, H, Stockton, SJ. 2016.*Pharmaceutical Calculations*. 15th Edition. United States: Lippincott, Williams & Wilkins

Agensi Regulatori Farmaseutikal Kebangsaan. 2018. *Good Compounding Practice 1st Edition*.Malaysia: Kementerian Kesihatan Malaysia.

Bahagian Perkhidmatan Farmasi. 2016. *Guide to Good Dispensing Practice 1st Edition*. Malaysia: Kementerian Kesihatan Malaysia.

British Pharmacopoeia Commission. British Pharmacopoeia 2018.

NFNF1813 Chemistry of Drugs

The purpose of this course is to introduce chemistry of drugs to pharmacy students. Further discussion covers highlights the basic principles of organic chemistry pharmaceutical related to structure and chemical bonding, nomenclature of organic functional groups, stereochemistry, organic mechanisms reaction based on the addition reaction of nucleophilic and electrophiles, amines and heterocyclic compounds and also phytochemical content and properties (i.e. carbohydrates, lipids, alkaloids, terpenes and phenolics). Examples of related drugs will be included. The students will also enquire laboratory skill in analysis of organic substances and phytochemical screening from plants source.

Basic Reading

Dewick, P. M. 2008. Essential of Organic Chemistry. West Sussex: John Wiley & Sons, Ltd.

McMurry, J. 2016. Organic Chemistry. Ed. Ke-9. Pacific Grove: Brooks/Cole.

Sarker, S. & Nahar, L. 2007. Chemistry for Pharmacy Student: General, Organic and Natural Product Chemistry. New York: John Wiley & Son.

Solomons, T.W.G. & Fryhle, C.B. 2016. Organic Chemistry. Ed. Ke-11. New York: John Wiley & Sons, Inc.

Dewick, P.M. 2009. Medicinal Natural Products: A Biosynthetic Approach. Ed. Ke-3. England: John Wiley & Sons, Ltd.

NFNF1912 Introduction to Pharmacy Profession

This course contains lectures and visits to pharmacy practice sites. Students will be exposed to various aspects of the pharmacy profession in Malaysia and related issues. Students will also be taken to visit a hospital and a community pharmacy to see the role of pharmacists and their activities conducted at those sites.

Basic Reading

Anderson, S. 2005. Making Medicines. A brief history of pharmacy and pharmaceutics. Great Britain: Pharmaceutical Press.

Gennaro, A.R. 2005. Remington. The Science and Practice of Pharmacy. USA: Lippincott Williams & Wilkins.

Kelly, W.N. 2018. Pharmacy: What it is and how it works. Boca Raton: CRC Press.

Posey, L.M. 2016. Pharmacy: An Introduction to the Profession. Washington D.C.: APHA.

Laporan Tahunan Kementerian Kesihatan Malaysia 2018.

NFNF1622 Microbiology

This course emphasises on the fundamentals of microbiology, the types and structures of microbes, their growth, metabolism, genetics including microbial culturing techniques. Other aspects discussed include taxonomy, identification and classification of microbes which are related to health and diseases. This course will also emphasise on infection control and imunisastion as well as sterilisation and disinfection.

Basic Reading

Denyer, S.P., Hodges, N., Gorman, S.P. & Gilmare, B.F. (pytg), 2011. Huge and Russelt's Pharmaceutical Microbiology. Ed. ke-8. New York: Wiley-Blackwell.

Hanlon, G. & Hodges, N.A. 2013 . Essential Microbiology for Pharmacy and Pharmaceutical Science. Ed. Ke 1. New York: Wiley-Blackwell.

Levinson, W.E. & Jawetz, E. 2018. Review of Medical Microbiology & Immunology: A guide to Clinical Infectious Diseases. Ed. Ke 15. Norwalk: Appleton & Lange.

Tortora, G. J., Funke, B. R. & Case, C. L. 2018. Microbiology: An introduction. Ed. Ke 13. New Jersey: Pearson.

Wistreich, G.A. 2003. Microbiology Laboratory: Fundamentals and Applications. Ed. Ke 2. New Jersey: Pearson Education.

NFNF1623 Basic Pharmacology and Toxicology

The core content of this course covers a variety of topics pertaining to the fundamental principles in pharmacology; and these include pharmacodynamics, pharmacokinetics and toxicology. The students will also be expected to tackle the chemical aspects that underly each of the principal areas. Overall, the specific topics that will be taught are pharmacodynamics, medicinal chemistry of drug action, routes of drug administration, pharmacokinetics, medicinal chemistry of drug metabolism, drug-drug interaction, basic principles of toxicodynamics and toxicokinetics, mechanism of drug toxicity, drug poisoning and its treament, and toxicity testing.

Basic Reading

Katzung, B.G. 2017. *Basic & Clinical Pharmacology*. Ed. ke-17. USA: McGraw Hill Medical.

Rang, H., Dale, M., Ritter, J. & Flower, R. 2019. *Rang and Dale's Pharmacology*. Ed. ke-9. UK: Churchill Livingstone.

Klaassen, C. & Watkins III, J.B. 2015. *Casarett & Doull's Essentials of Toxicology*. Ed. Ke-3. New York: McGraw-Hill.

Helmut Greim, Robert Snyder. 2019. *Toxicology and Risk Assessment: A Comprehensive Introduction*. Wiley Library.

Williams, D.A. (pytg.) 2019. *Foye's Principles of Medicinal Chemistry*. Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF1722 Dosage Design & Development I

In this course, the basic principles and knowledge in pharmaceutical ingredients, product formulation and development of solid dosage form will be covered. This course aims to introduce the principles of formulation, manufacturing technology and product quality assurance of solid dosage forms. Major topics covered include preformulation, powder technology, tablet and capsules, stability testing for solid dosage forms.

Basic Reading

Aulton M., Taylor K. 2017. *Aulton's Pharmaceutics*. *The Design and Manufacture of Medicines*. 4th Edition. Churchill Livingstone.

Allen L, Ansel H. C. 2017. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. Lippincott Williams & Wilkins.

Florence, A.T & Atwood, D. 2015. *Physicochemical Principles of Pharmacy*. 5th edition. London: Pharmaceutical Press.

Simon Gaisford, Mark Saunders 2012. *Essentials of Pharmaceutical Preformulation.* John Wiley & Sons, Ltd.

Shelley Chambers Fox. 2014. *Remington Education: Pharmaceutics.* Pharmaceutical Press.

NFNF1822 Drug Design and Development

This course covers the general principals and strategies in discovering and designing new drugs and developing them for the marketplace including the development of drugs from natural products. It describes how potential drugs molecules are identified and subsequently optimised into safe and effective drugs. It also looks into the rational drug design and tools used for instance; quantitative structure activity relationship (QSAR), combinatorial synthesis and computer-aided design.

Basic Reading

Nogrady, T. & Weaver, D.F. 2005. Medicinal Chemistry: A Molecular and Biochemical Approach. Ed. Ke-3. United Kingdom: Oxford University Press.

Patrick, G.L. 2017. An Introduction to Medicinal Chemistry. Ed. Ke-6. United Kingdom: Oxford University Press.

Lemke, T.L., Williams, D.A., Roche, V.F. & Zito, S.W. 2017. Essentials of Foye's. Principles of Medicinal Chemistry. USA: Lippincott Williams & Wilkins.

Thomas, G. 2007. Medicinal Chemistry.Ed. Ke-2. Chinchester: John Wiley.

Delgado, J.N. & Remers, W.A. 2011. Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry. Ed. Ke-12. Philadelphia: Lippincott-Raven.

NFNF1922 Professional communication and patient education

This course consists of a series of lectures that cover important topic in communication and patient education. Examples of important topics that cover in this course are intorudction to communication theory, psychology in patients communication, interprofessional communication, patient education and health promotion.

Basic Reading

Robert S Beardsley et al. 2012. *Communication skills in pharmacy practice*, 6th ed, Philadelphia PA: Lippincott Williams & Wilkins.

Melanie J Rantucci. 2007. *Pharmacist talking with patient: A guide to patient counselling*, 6th ed, Philadelphia PA: Lippincott Williams & Wilkins.

Bruce A Berger. 2009. *Communication skills for pharmacists: Building relationships, improving patient care*, 3rd ed, WashingtonDC: American Pharmacists Association.

Lauster, Colleen. Burlington, MA. 2014. *Fundamental skills for patient care in pharmacy practice*, Barlington MA: Jones & Bartlett Learning.

Levounis P, Arnaout B, Carla Marienfeld. 2017. Motivational interviewing for clinical practice, Arlington VA: American Psychiatric Association Publishing.

Donna Weiss, Felice J. Tilin, Marlene J. Morgan. 2018. *The interprofessional health care team : leadership and development,* Barlington MA: MA: Jones & Bartlett Learning.

NFNF2612 Immunology

The purpose of this course is to understand the protective and disease-fighting functions of the human immune system. Issues discussed are on the components of the immune system which consist of cells, tissues and organs that work together in maintaining a homeostatic immune response to fight against certain diseases. The mechanism of immune responses will be discussed in details in order to understand the development of immune-related diseases such as allergy, autoimmune and cancer. Diagnostic and research tools adapted from immunological responses used for therapeutical benefits will also be summarised in this course.

Basic Reading

Khan, M. M., 2014, Immunopharmacology. United States: Springer US.

Murphy K.; Travers P., Walport M., 2017, Janeway`s Immunobiology, 9th ed, Garland Science, Taylor&Francis Group, New York.

Levinson, W, 2018, Review of medical microbiology and immunology: Medical microbiology and immunology 15th ed., Lange Medical Book/McGraw-Hill, New York.

Roitt's Essential Immunology 13th ed. (n.d.). Retrieved from http://www.roitt.com/

Abbas A.K., Lichtman A.H., Pillai S., 2017, Cellular and Molecular Immunology, 9th ed., International ed., Saunders Elsevier, Philadelphia.

NFNF2632 Pharmacology of the Peripheral Nervous System

This course has a specific focus on the pharmacology and the chemistry of therapeutic agents that act on the peripheral nervous system (PNS). Introductory lectures will be given on the anatomy and physiology of important PNS structures. Subsequent lectures will cover the following drug classes: cholinoceptor-activating agents, cholinesterase-blocking agents, cholinoceptor antagonists, adrenoceptor-activating agents, and adrenoceptor antagonists. The students will also be taught about the rational use of drugs, from each of the aforementioned drug classes, in the therapy of PNS-related disorders.

Basic Reading

Brunton, L.L. & Knollman, B. 2023. *Goodman and Gilman's The Pharmacological Basis of Therapeutics*. 14th Ed. USA: McGraw-Hill Education.

DiPiro, J.T., Yee, G.C., Haines, S.T., Nolin, T.D., Ellingrod, V.L. & Posey, L.M. 2023. *Pharmacotherapy: A Pathophysiologic Approach*. 12th Ed. New York: McGraw-Hill.

Patrick, G.L. 2023. *An Introduction to Medicinal Chemistry*. 7th Ed. Oxford: Oxford University Press.

Ritter, J.M. 2024. *Rang and Dale’s Pharmacology*. 10th Ed. Netherlands: Elsevier.

Todd, W.V. 2024. *Katzung's Basic & Clinical Pharmacology*. 16th Ed. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. *Principles of Anatomy & Physiology*. 16th Ed. USA: Wiley.

NFNF2652 Pharmacotherapy Of Endocrine Disorders and Autacoids

This course emphasises the pharmacology and medicinal chemistry of drugs that act on endocrine and genitourinary systems for the treatment of endocrine and genitourinary disorders. Introduction to the anatomy and physiology of important parts and pathophysiology of disorders of the endocrine and genitourinary systems are discussed. Disorders/drugs of the endocrine and genitourinary systems comprise thyroid diseases, diabetes mellitus, adrenal diseases, erectile dysfunction, premature ejaculation, anabolic steroids, oral contraceptive agents, infertility, hormone replacement therapy and benign prostate hyperplasia. Phytotherapy related to the systems are described. Students will be introduced to rational drug use in clinical aspects of patient therapy for each disorder/disease which has been discussed.

Basic Reading

Brunton, L. & Knollman, B. 2023. *Goodman & Gilman's The Pharmacological Basis of Therapeutics.* Ed. ke-14. New York: McGraw Hill.

DiPiro, J., Talbert, R.L., Yee, G., Matzke, G., Wells, B. & Posey, L.M. 2023. *DiPiro's Pharmacotherapy : A Pathophysiologic Approach.* Ed. ke-12. New York: McGraw-Hill.

Martini, F.H., Nath, J.L. & Bartholomew, E.F. 2019. *Fundamentals of Anatomy & Physiology.* Ed. ke-11. Harlow: Pearson Education Ltd.

Rang, H., Dale, M., Ritter, J. & Flower, R. 2019. *Rang and Dale's Pharmacology*. Ed. ke-9. UK: Churchill Livingstone.

Roche, V.F., Zito, S.W., Lemke, T.L. & Williams, D.A. 2019. *Foye's Principles of Medicinal Chemistry.* Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF2712 Dosage Design & Development II

In this course, the basic principles and knowledge in pharmaceutical ingredients, product formulation and development of liquid and gaseuous dosage forms will be covered. This course also introduces the formulation of sterile and parenteral preparations. Major topics include disperse systems (colloids, emulsion and suspension), surface chemistry, thermodynamics, aseptic techniques, parenteral, aerosol and inhalers , product quality assurance for liquid and gaseous dosage forms.

Basic Reading

Aulton M., Taylor K. 2017. *Aulton's Pharmaceutics*. *The Design and Manufacture of Medicines.* 4th Edition. Churchill Livingstone.

Allen L, Ansel H. C. 2017. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. Lippincott Williams & Wilkins.

Florence, A.T & Atwood, D. 2015. *Physicochemical Principles of Pharmacy*. 5th edition.London: Pharmaceutical Press.

Simon Gaisford, Mark Saunders 2012. *Essentials of Pharmaceutical Preformulation*. John Wiley & Sons, Ltd.

Shelley Chambers Fox. 2014. *Remington Education: Pharmaceutics*. Pharmaceutical Press.

NFNF2813 Pharmacopoeial Methods for Drug Analysis

This course will introduce wide range of theoretical and practical aspects related to the Pharmacopeia titration method, qualitative and quantitative separation techniques used in determining the pharmaceutical substances and control of impurities in pharmaceutical materials. The method of pharmacopoeia referral includes acid-base, non-aqueous, precipitation, complexometry and redox titration. While qualitative and quantitative separation techniques emphasize common extraction techniques, chromatographic separation techniques such as thin layer chromatography, gas chromatography, fluid chromatography, affinity chromatography, and extreme precipitated chromatography and other techniques such as high performance capillary electrophoresis method.

Basic Reading

Steen, H.H., Stig, P. & Knut E. R. 2012. *Introduction to Pharmaceutical Chemical Analysis*, Wiley.

Watson, D.G. 2020. *Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists*. 5th. Ed. Edinburgh: Elsevier Churchill Livingstone.

British Pharmacopoeia. 2018. London: *British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency*.

Beckett, A.H. & Stenlake, J.B. 2005. *Practical Pharmaceutical Chemistry. Part 2*. UK: Athlone Press.

NFNF2932 Traditional and Complementary Medicines

This course introduces students to the principles, practices and treatment methods of various traditional and complementary medicines (T/CM) practised in primary healthcare. The topics covered in this course include scientific basis of T/CM, traditional medicine in primary healthcare, Malay, Chinese and Indian traditional medicines, naturopathy and nutritional therapy, western herbalism, homoeopathy, aromatherapy, acupuncture, reflexology, chiropractic and osteopathy. It is hoped that the basic knowledge would help students to make proper judgement and to provide balanced advices to the patients undergoing T/CM treatments.

Basic Reading

Bergmann, T.F. & Peterson, D.H. 2011. Chiropractic Technique: Principles and Procedures. Ed. Ke-3. St. Louis: Elsevier.

Adams JD & Lien EJ. 2013. Traditional Chinese Medicine: Scientific Basis for Its Use. Cambridge: RSC Publishing.
Barnes J, Anderson LA & Phillipson JD. 2002. Herbal Medicine: A Guide for Healthcare Professionals. London: Pharmaceutical Press.
Mason, P. 2000. Nutrition and Dietary Advice in the Pharmacy. Ed. Ke-2. Oxford: Blackwell Science Ltd.
Harun MP & Zawiyah B. 2014. Kitab Tib MSS251 Perpustakaan Negara Malaysia: Kajian teks dan suntingan. Kuala Lumpur.
Owen, D. 2015. Principles and Practice of Homeopathy: The Therapeutic and Healing Process. Philadelphia: Churchill Livingstone Elsevier.

NFNF 2912 Approach to Clinical Pharmacy

The course consists of a series of lectures, workshops and case presentation. Student will be exposed to the basic principle of clinical pharmacy and the pharmaceutical care approaches for hospital patients. Students will be introduced to patients' medical record and relevant health information associated with pharmaceutical care. Clinical pharmacy approaches such as choosing the appropriate drug and patient monitoring will also be exposed. Laboratory data interpretation related to drug therapy will also be discussed.

Basic Reading

Zeind, S.C., Carvalho, M.G. 2024. Applied Therapeutics: The Clinical Use of Drugs, 12th ed. Philadelphia: Lippincott Williams & Wilkins.
Rtieze, K.J. 2012. Clinical Skills For Pharmacists: A Patient-Centered Approach, 3rd ed. Missouri: Elsever Mosby.
Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice: The Patient-Centered Approach to Medication Management care, 3rd ed. New York: Mc Graw-Hill.
DiPiro, J.T., Yee, G.C., Haines S.T., Nolin, T.D., Ellingrod V.L., Posey, L.M. 2024. DiPiro's pharmacotherapy : a pathophysiologic approach, 12th ed. New York:McGraw Hill.
Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists – A basis for clinical pharmacy, 3rd ed. London: Chapman & Hall.

NFNF2623 Pharmacotherapy of Infection, Infestation & Immune Disorders

The course consists of lectures, tutorials and group discussions, case studies and assignments. This course aims to introduce the concepts of pharmacology and medicinal chemistry of antibiotic, antiviral, antiparasite, antifungal, and immunomodulatory drugs. Emphasis is given to the principles of antimicrobial therapies, the mechanism of drug action, the mechanism of drug resistant and structure activity relationship for various antimicrobial agents and immunomodulatory drugs.

Basic Reading

Brunton, L., Knollman, B. & Hilal-Dandan, R. 2017. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-13. USA: McGraw-Hill Education.

Burger, A. & Abraham, D.J. 2003. Burger's Medicinal Chemistry and Drug Discovery. Ed. Ke-6. Hoboken: John Wiley & Sons.

DiPiro J., Talbert R.L., Yee G., Matzke G., Wells, B. & Posey, L.M. 2017.Pharmacotherapy, a Pathophysiologic Approach. Ed. ke-10. New York: McGraw Hill.

Katzung, B.G. 2018. Basic & Clinical Pharmacology. Ed. ke-14. USA: McGraw Hill Education.

Martini, F.H., Nath, J.L. & Bartholomew, E.F. 2019. Fundamentals of Anatomy & Physiology. Ed. ke-11. Harlow: Pearson Education Ltd.

Patrick, G. 2017. An Introduction to Medicinal Chemistry. Ed. ke-6. Oxford: Oxford University Press.

Roche, V.F., Zito, S.W., Lemke, T.L. & Williams, D.A. 2019. Foye's Principles of Medicinal Chemistry. Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF 2622 Pharmacotherapy of Renal and Genitourinary

The content of this course is delivered through lectures, tutorials, case studies, and group assignments. This course emphasizes pharmacology and medicinal chemistry of drugs that act on the renal and genitourinary system. Introduction to the anatomy and physiology of important parts of the renal and genitourinary systems, as well as the pathophysiology of disorders in these systems, is discussed. Renal and genitourinary disorders including acute and chronic renal failure, nephrotic syndrome, renal replacement therapy, and non-cancerous prostate enlargement are covered. Herbal therapy related to and drug-induced diseases affecting the renal and genitourinary system are also explained. Students will be exposed to the rational use of drugs in the clinical management of patients for each discussed disorder/disease.

Basic Reading

Brunton, L., Knollman, B. & Hilal-Dandan, R. 2017. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-13. USA: McGraw-Hill Education.

Burger, A. & Abraham, D.J. 2003. Burger's Medicinal Chemistry and Drug Discovery. Ed. Ke-6. Hoboken: John Wiley & Sons.

DiPiro J., Talbert R.L., Yee G., Matzke G., Wells, B. & Posey, L.M. 2017. Pharmacotherapy, a Pathophysiologic Approach. Ed. ke-10. New York: McGraw-Hill.

Katzung, B.G. 2018. Basic & Clinical Pharmacology. Ed. ke-14. USA: McGraw Hill Education.

Martini, F.H., Nath, J.L. & Bartholomew, E.F. 2019. Fundamentals of Anatomy & Physiology. Ed. ke-11. Harlow: Pearson Education Ltd.

Patrick, G. 2017. An Introduction to Medicinal Chemistry. Ed. ke-6. Oxford: Oxford University Press.

Roche, V.F., Zito, S.W., Lemke, T.L. & Williams, D.A. 2019. Foye's Principles of Medicinal Chemistry. Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF2722 Dosage Design & Development III

The basic principles and knowledge in pharmaceutical excipients, product development and quality assurance of semisolid dosage forms (cream, ointment, paste and gels) will be covered. This course also introduces the biopharmaceutic aspecst of various routes of administrations, namely oral, buccal, sublingual, topical, transdermal, nasal, pulmonary, otic, ophthalmic, parenteral, vaginal, rectal and nanomedicine.

Basic Reading

Aulton M., Taylor K. 2017. *Aulton's Pharmaceutics. The Design and Manufacture of Medicines*. 4th Edition. Churchill Livingstone.

Allen L, Ansel H. C. 2017. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. Lippincott Williams & Wilkins.

Florence, A.T & Atwood, D. 2015. *Physicochemical Principles of Pharmacy*. 5th edition. London: Pharmaceutical Press.

Simon Gaisford, Mark Saunders 2012. *Essentials of Pharmaceutical Preformulation*. John Wiley & Sons, Ltd.

Shelley Chambers Fox. 2014. *Remington Education: Pharmaceutics*. Pharmaceutical Press.

NFNF2823 Spectroscopic Techniques for Drug Analysis

Students will be exposed to various theoretical and practical aspects of spectroscopy comprising of principles, instrumentation, data interpretation and applications in pharmaceutical analysis. The spectroscopic techniques covered are ultraviolet-visible spectrophotometry, spectrofluorometry, atomic absorption and emission spectrophotometry, infrared spectrophotometry, mass spectrometry, nuclear magnetic resonance spectrometry, polarimetry, circular dichroism and x-ray crystallography. Data analytics using chemometric techniques will also be discussed. The students will also be exposed to the applications of integrated spectroscopic techniques for the structural elucidation of compounds in drug discovery, for the pharmaceutical analysis in drug development and quality control, and for the monitoring in drug therapy and abuse.

Basic Reading

Beckett, A.H. & Stenlake, J.B. 2005. *Practical Pharmaceutical Chemistry*. Part 2. UK: Athlone Press.

British Pharmacopoeia. 2018. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Pavia, D.L., Lampman, G.M. & Kriz, G.S. Vyvyan, J.A. 2015. *Introduction to Spectroscopy*. USA: Cengage Learning.

Siddiqui, A. A. 2011. *Pharmaceutical Analysis*. New Delhi: CBS Publishers.

Watson, D.G. 2020. *Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists*. 5th. Ed.Edinburgh: Elsevier Churchill Livingstone.

NFNF2922 Legislation, ethics and policies in Pharmacy

The practice of pharmacy does not only cover the scientific aspects but also include legal aspects, ethical values and government policies. This course provides exposure to the laws and regulations that need to be understood in pharmaceutical practice, bio-ethical issues, exposure to government policies in health management and the national health system are also emphasized here.

Basic Reading

Acts and Regulations related to pharmacy

Code of Ethics For Pharmacists 2018

Ministry of Health Malaysia, 2012. The National Medicines Policy (Dasar Ubat Nasional), Ed. Ke-2, Kementerian Kesihatan Malaysia.

NFNF3612 Pharmacotherapy of Central Nervous System Disorders

This course emphasises the pharmacology and medicinal chemistry of drugs that act on the central nervous system for the treatment of neurological and psychiatric disorders. Introduction to the anatomy and physiology of important parts and pathophysiology of disorders of the central nervous system are discussed. Disorders of the central nervous system comprise pain, epilepsy, Alzheimer's disease, Parkinson's disease, migraine, anxiety, depression, schizophrenia, bipolar disorder, and drug abuse and addiction. Phytotherapy and drug-induced diseases (DIDs) related to the system are described. Students will be introduced to rational drug use in clinical aspects of patient therapy for each disorder/disease which has been discussed.

Basic Reading

Brunton, L., Knollman, B. & Hilal-Dandan, R. 2017. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-13. USA: McGraw-Hill Education.

Burger, A. & Abraham, D.J. 2003. Burger's Medicinal Chemistry and Drug Discovery. Ed. Ke-6. Hoboken: John Wiley & Sons.

DiPiro J., Talbert R.L., Yee G., Matzke G., Wells, B. & Posey, L.M. 2017. Pharmacotherapy, a Pathophysiologic Approach. Ed. ke-10. New York: McGraw-Hill.

Katzung, B.G. 2018. Basic & Clinical Pharmacology. Ed. ke-14. USA: McGraw Hill Education.

Martini, F.H., Nath, J.L. & Bartholomew, E.F. 2019. Fundamentals of Anatomy & Physiology. Ed. ke-11. Harlow: Pearson Education Ltd.

Patrick, G. 2017. An Introduction to Medicinal Chemistry. Ed. ke-6. Oxford: Oxford University Press.

Roche, V.F., Zito, S.W., Lemke, T.L. & Williams, D.A. 2019. Foye's Principles of Medicinal Chemistry. Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF3613 Pharmacotherapy of Cardiovascular and Respiratory Disorders

This course is delivered via didactic lectures, tutorials, practicals, case-based studies and group assignments. The core content of this course covers a variety of topics pertaining to the pharmacology and medical chemistry of drugs that act on the cardiovascular and respiratory systems. These include the anatomy, physiology, pathophysiology, pharmacodynamics, pharmacokinetics, toxicology, phytotherapy, drug-induced diseases and therapeutic options in this topic. Topics of disorders include hypertension, diuretics, congestive heart failure, ischaemic heart disease, arrythymia, hyperlipidaemia, anticoagulant, thrombolytics, antiplatelets, asthma, COPD and cough.

Basic Reading

Brunton, L., Knollman, B. & Hilal-Dandan, R. 2017. Goodman and Gilman's. The Pharmacological Basis of Therapeutics. Ed. ke-13. USA: McGraw-Hill Education.

Burger, A. & Abraham, D.J. 2003. Burger's Medicinal Chemistry and Drug Discovery. Ed. Ke-6. Hoboken: John Wiley & Sons.

DiPiro J., Talbert R.L., Yee G., Matzke G., Wells, B. & Posey, L.M. 2017. Pharmacotherapy, a Pathophysiologic Approach. Ed. ke-10. New York: McGraw-Hill.

Katzung, B.G. 2018. Basic & Clinical Pharmacology. Ed. ke-14. USA: McGraw Hill Education.

Martini, F.H., Nath, J.L. & Bartholomew, E.F. 2019. Fundamentals of Anatomy & Physiology. Ed. ke-11. Harlow: Pearson Education Ltd.

Patrick, G. 2017. An Introduction to Medicinal Chemistry. Ed. ke-6. Oxford: Oxford University Press.

Roche, V.F., Zito, S.W., Lemke, T.L. & Williams, D.A. 2019. Foye's Principles of Medicinal Chemistry. Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF3632 Statistics and Research Methodology

This course consists of lectures, tutorials and workshops. Students will be introduced to basic statistical techniques such as descriptive statistics and inferential statistics. In addition, this course will also provide exposure to the use of statistical analysis software. Students will also be taught on research designs and the process of conducting research.

Basic Reading

Mann, P.S. 2017. Introductory Statistics. Ed. Ke-9. USA: John Wiley & Sons Ltd.

Gravetter, F. & Wallnau, L. 2017. Statistics for the Behavioral Sciences. Ed. Ke-10. USA: Wadsworth, Cengage Learning.
Martin, W. & Bridgmon, K. 2012. Quantitative and Statistical Research Methods. From Hypothesis to Results. USA: Jossey-Bass.
Pallant, J. 2016. SPSS Survival Manual. Ed. Ke-5. Buckingham: Open University Press.
Field, A. 2018. Discovering Statistics Using IBM SPSS Statistics. Ed. Ke-5. London: Sage Publications Ltd.

NFNF3812 Quality Assurance of Pharmaceutical

The course is aimed at providing students with knowledge and understanding of specific requirements on quality assurance and regulations in pharmaceutical and other related industries. Lectures will emphasize on principles of quality assurance, documentation and record, principles and applications of the guidelines for Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), Good Clinical Practice (GCP) and regulatory requirements for assuring quality in pharmaceutical production and related industries. Seminar sessions, workshops, organized visits and self-learning are aimed at strengthening theoretical knowledge and providing skills in various applications of quality assurance.

Basic Reading

Graham P. Bunn, 2019. Good Manufacturing Practices for Pharmaceuticals, 7th Edition. US: Drugs and the Pharmaceutical Sciences..
PIC/S, January 2017. Guide to Good Manufacturing Practice for Medicinal Products, PE 009-8.
WHO, 2004. Quality Assurance of Pharmaceuticals, A Compendium of guidelines and related materials, Volume 2, Geneva.
British Pharmacopoeial Commission 2018. British Pharmacopoeia 2018. London. The Stationary Office
United States Pharmacopeial Convention 2018. United States Pharmacopeia-National Formulary (USP 32-NF 27). Rockville

NFNF3912 Community Pharmacy Practice

This course consists of lectures, tutorials, seminars and attachment at the community pharmacy. Students will be exposed to aspects of pharmacy practice in the community setting including symptom management and medication safety. In addition, this course will also provide exposure in terms of the management of a community pharmacy. Students will be involved in a group project in planning the opening and management of a community pharmacy. Mastery of knowledge and skills from this course will assist students' preparation in the management and provision of good pharmacy services to patients in the community.

Basic Reading

Rutter, P. 2017. Community Pharmacy: Symptoms, Diagnosis and Treatment. Ed. Ke-14. U.K.: Elsevier Health Sciences.

Addison, B., Brown, A., Edwards, R. & Gray G. 2016. Minor Illness or Major Disease. Ed. Ke-6. Pharmaceutical Press.

Blenkinsopp, A., Paxton, P. & Blenkinsopp, J. 2014. Symptoms in the Pharmacy. A Guide to the Management of Common Illness. Ed. Ke-7. Wiley-Blackwell.

Desselle, S., Zgarrick, D. & Alston, G. 2012. Pharmacy Management. Ed. Ke-3. McGraw- Hill Professional.

Tootelian, D., Wertheimer, A. & Mikhailitchenko, A. 2012. Essentials of Pharmacy Management. Ed. Ke-2. Pharmaceutical Press.

NFNF3913 Specialised Pharmacy Services I

This course contains a few series of lectures, tutorials, visits and workshops. Students will be introduced to basic clinical pharmacokinetic principles, therapeutic drug monitoring, drug level interpretation, approach in dosing changes and patients' clinical monitoring. Students will also be taught on drug and poison information services. These services will include information retrieval and classification, handling enquiries, literature review, drug analysis, drug use monitoring and adverse drug reactions. Students will also be exposed to basics in pharmacogenetics and health informatics.

Basic Reading

DiPiro, J.T., Talbert, R.L., Yee, G.C., Matzke, G.R., Wells, B.G. & Posey, LM. 2017. Pharmacotherapy: A Pathophysiology Approach. 10th edn. New York: McGraw-Hill.

Young, L. Y. & Koda-Kimble, M. A. 2013 Applied therapeutics: The clinical use of drugs. 10th edn. Vancouver: Applied Therapeutics.

Rowland M. & Tozer T.N. 2009 Clinical Pharmacokinetics: Concepts and Applications. 3rd edn. Baltimore: Lippincott Williams & Wilkins

Winter M.E. 2018. Basic Clinical Pharmacokinetics. 6th edn. Vancouver: Applied Therapeutics Inc.

Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice: The Patient-Centered Approach to Medication Management. 3rd edn. New York: Mc Graw-Hill.

Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists: A basis for clinical pharmacy. 3rd edn. London: Chapman & Hall.

NFNF3932 Pharmaceutical Care of Special Population

This course consists of a series of lectures, workshops and case studies. Students will be trained in pharmaceutical care for specialised populations such as women's health, paediatric, geriatric, palliative care and hospice.

Basic Reading

Beardsley R.S., Kimberlin C.L. &Tindall W.N. 2008. Communication Skills in Pharmacy Practice, 5th ed. Philadelphia: Lippincott Williams & Wilkins.

DiPiro, J.T., Talbert, R.L., Yee, G.C., Matzke, G.R., Wells, B.G. & Posey, LM. 2008.Pharmacotherapy: A Pathophysiology Approach. 7thedn. New York: McGraw-Hill.
Herfindal, E.T. 1992. Clinical Pharmacy and therapeutics. Ed. Ke-5. Baltimore: Williams & Wilkins.
Young, L. Y. & Koda-Kimble, M. A. 2013 Applied therapeutics: The clinical use of drugs. 10thedn. Vancouver: Applied Therapeutics.
Rowland M. & Tozer T.N. 1995 Clinical Pharmacokinetics: Concepts and Applications. Baltimore: Lippincott Williams& Wilkins.
Winter M.E. 2010. Basic Clinical Pharmacokinetics. 5thedn. Vancouver: Applied Therapeutics Inc.
Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice: The Patient-Centered Approach to Medication Management. 3rd edn. New York: Mc Graw-Hill.
Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists: A basis for clinical pharmacy. 3rd edn. London: Chapman & Hall.

NFNF3182 Research Project I

In this course, students are exposed to the principles of designing and conducting research projects, analyzing and interpreting data, as well as dissertation writing. The types of research conducted include laboratory studies, surveys, systematic reviews, and meta-analysis. Students will carry out research projects over two semesters under the supervision of lecturers through this course and the NFNF4574 course. Course activities include presenting research proposals, dissertation writing, presenting results, and oral examinations. Continuous assessment will be conducted throughout the session.

Basic Reading

Books related to the field under study.
Journals related to the field under study.
Panduan penulisan tesis Gaya UKM. Edisi Semak 2010. Bangi: Pusat Pengajian Siswazah, Universiti Kebangsaan Malaysia.

NFNF3622 Pharmacotherapy of Gastrointestinal Disorders

The course content is delivered through lecture sessions, tutorials, case studies, and group assignments. This course places emphasis on pharmacology and medicinal chemistry of drugs acting on the gastrointestinal system. Introduction to the anatomy and physiology of important parts of the gastrointestinal system and the pathophysiology of disorders of this system are discussed. Gastrointestinal disorders include constipation, diarrhea, vomiting, peptic ulcer disease, reflux esophagitis, inflammatory bowel disease, liver failure and cirrhosis, and obesity. Relevant herbal therapy and drug-induced diseases of the gastrointestinal system are also explained. Students will be exposed to the rational use of drugs in the clinical aspect of patient therapy for each disorder/disease discussed.

Basic Reading

Brunton, L., Knollman, B. & Hilal-Dandan, R. 2017. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-13. USA: McGraw-Hill Education.

Burger, A. & Abraham, D.J. 2003. Burger's Medicinal Chemistry and Drug Discovery. Ed. Ke-6. Hoboken: John Wiley & Sons.

DiPiro J., Talbert R.L., Yee G., Matzke G., Wells, B. & Posey, L.M. 2017. Pharmacotherapy, a Pathophysiologic Approach. Ed. ke-10. New York: McGraw-Hill.

Katzung, B.G. 2018. Basic & Clinical Pharmacology. Ed. ke-14. USA: McGraw Hill Education.

Martini, F.H., Nath, J.L. & Bartholomew, E.F. 2019. Fundamentals of Anatomy & Physiology. Ed. ke-11. Harlow: Pearson Education Ltd.

Patrick, G. 2017. An Introduction to Medicinal Chemistry. Ed. ke-6. Oxford: Oxford University Press.

Roche, V.F., Zito, S.W., Lemke, T.L. & Williams, D.A. 2019. Foye's Principles of Medicinal Chemistry. Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF3642 Pharmacotherapy of Musculoskeletal dan Integumentary Disorders

This course has a specific focus on the pharmacology and medicinal chemistry of drugs that act on the musculoskeletal and the integumentary systems. Introductory lectures will be given on the anatomy and physiology of the important structures of these systems. The pathophysiology of relevant disorders affecting these systems will be discussed: gout, osteoarthritis, rheumatoid arthritis, eczema, dermatitis, psoriasis, acne, scabies, and warts. Other related topics include phytotherapy and non-pharmacological management of the aforementioned musculoskeletal and skin disorders, and drug-induced musculoskeletal and skin toxicities. The students will also be taught about the rational use of drugs to treat musculoskeletal and skin disorders in different clinical scenarios.

Basic Reading

Brunton, L.L. & Knollman, B. 2023. *Goodman and Gilman's The Pharmacological Basis of Therapeutics*. 14th Ed. USA: McGraw-Hill Education.

DiPiro, J.T., Yee, G.C., Haines, S.T., Nolin, T.D., Ellingrod, V.L. & Posey, L.M. 2023. *Pharmacotherapy: A Pathophysiologic Approach*. 12th Ed. New York: McGraw-Hill.

Todd, W.V. 2024. *Katzung's Basic & Clinical Pharmacology*. 16th Ed. USA: McGraw Hill Medical.

Tortora, G.J. & Derrickson, B.H. 2023. *Principles of Anatomy & Physiology*. 16th Ed. USA: Wiley.

Ritter, J.M. 2024. *Rang and Dale's Pharmacology*. 10th Ed. Netherlands: Elsevier.

Lemke, T.L., Williams, D.A. (eds.) 2020. *Foye's Principles of Medicinal Chemistry*. 8th Ed. USA: Lippincott Williams & Wilkins.

NFNF3662 Pharmacotherapy of Oncology and Haematology

The course consists of lectures, tutorials, case studies and group assignments. This course focuses on pharmacology and medical chemistry of drugs that act on oncology and haematology for the treatment of this system disorders. Introduction to blood physiology and cancer pathophysiology and haematological disorders are also discussed. Pharmacotherapy includes thalassaemia, anaemia, blood therapy and fluid, lung cancer, breast cancer, cervical and ovarian cancer, prostate cancer, liver cancer, colon cancer and malignant haematology are discussed. Phytotherapies related with oncology and haematology are also described. Students will be introduced to the rational drug use in clinical aspects of patient therapy for each disorder/illness discussed.

Basic Reading

Brunton, L., Knollman, B. & Hilal-Dandan, R. 2017. Goodman and Gilman's The Pharmacological Basis of Therapeutics. Ed. ke-13. USA: McGraw-Hill Education.

Burger, A. & Abraham, D.J. 2003. Burger's Medicinal Chemistry and Drug Discovery. Ed. Ke-6. Hoboken: John Wiley & Sons.

DiPiro J., Talbert R.L., Yee G., Matzke G., Wells, B. & Posey, L.M. 2017. Pharmacotherapy, a Pathophysiologic Approach. Ed. ke-10. New York: McGraw-Hill.

Katzung, B.G. 2018. Basic & Clinical Pharmacology. Ed. ke-14. USA: McGraw Hill Education.

Martini, F.H., Nath, J.L. & Bartholomew, E.F. 2019. Fundamentals of Anatomy & Physiology. Ed. ke-11. Harlow: Pearson Education Ltd.

Patrick, G. 2017. An Introduction to Medicinal Chemistry. Ed. ke-6. Oxford: Oxford University Press.

Roche, V.F., Zito, S.W., Lemke, T.L. & Williams, D.A. 2019. Foye's Principles of Medicinal Chemistry. Ed. ke-8. USA: Lippincott Williams & Wilkins.

NFNF3923 Specialised Pharmacy Services II

The purpose of this course is to introduce the students to the various specialized pharmacy services that are available such as the IV admixture (IV), nuclear pharmacy (NP), parenteral nutrition (PN) and cytotoxic drug reconstitution (CDR) unit. This course will help the students understand aspects of organization, system management and control of the various units, as well as training them in the pharmaceutical and technical aspects (aseptic dispensing) in pharmacy practice. The students will also be required to attend a series of workshops and hospital attachments.

Basic Reading

DiPiro J.T., & Yee G.C., & Haines S.T., & Nolin T.D., & Ellingrod V.L., & Posey L(Eds.). 2023. DiPiro's Pharmacotherapy: A Pathophysiologic Approach, 12th Edition. McGraw Hill.

Kowalsky, R.J. & Weathermen, K.D. 2020. Radiopharmaceuticals in nuclear pharmacy and nuclear medicine. 4th edition. American Pharmacist Association.

Drug Information Handbook: A Clinically Relevant Resource for All Healthcare Professionals. 2018. 27th Edition. Lexicomp Inc.

Caroline S. Zeind, Michael G. Carvalho, Judy W. Cheng, Kathy Zaiken, Trisha LaPointe. 2024. Applied Therapeutics: The Clinical Use of Drugs. Wolters Kluwer Health; 12th edition

Winfield, A.J. & Richards, R.M.E. 2014. Pharmaceutical Practice. 5th edition. Edinburgh: Churchill Livingstone.

NFNF3922 Pharmacoepidemiology and Pharmacoeconomics

This course features several applied topics such as pharmacoepidemiology and pharmacoeconomics. Pharmacoepidemiology involves evaluation related to the utilization, efficacy, effectiveness and safety of drugs in a large scale of a population. Pharmacoeconomics fields aids in the evaluation of resources and costs associated with medicines in the healthcare system. This course is conducted through interactive lecture sessions and case studies discussion.

Basic Reading

Rothman, K. J., Greenland, S., & Lash, T. L. 2012. *Modern Epidemiology (Vol. 3).* Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Hartzema, A.G., Tilson, H.H., & Chan, K.A. 2008. *Pharmacoepidemiology and Therapeutic Risk Management.* Harvey Whitney Books.

Rascati, K.L. 2013. *Essentials of Pharmacoeconomics (2nd Ed.)*. Philadelphia: Lippincott Williams and Wilkins.

Bootman, J. L., Townsend, R. J., & McGhan, W. F. 2005. *Principles of pharmacoeconomics (6th Ed.)*. Cincinnati, OH: Harvey Whitney Books Co.

Haycox, A., Walley, T. & Boland, A. (2004). *Pharmacoeconomics.* Edinburgh; New York: Churchill Livingstone,

NFNF3722 Pharmaceutical Biotechnology and Radiopharmaceuticals

This course introduces biopharmaceutical and radiopharmaceutical fields including biotechnology-based products as well as production and applications for healthcare. The course also discusses the basic aspects of nuclear pharmacy which includes the radiopharmaceutical properties, its products and applications as well as nuclear pharmacy.

Basic Reading

Crommelin, D.J.A. dan Sindelar, R.D. 2002. *Pharmaceutical Biotechnology: An Introduction for Pharmacists and Pharmaceutical Scientists*. Ed. Ke-2, London: Taylor and Francis.

Groves, M.J. 2006. *Pharmaceutical Biotechnology*. Ed. Ke-2, London: Taylor and Francis.

Francis, G.E. dan Delgado, C. 2000. *Drug targeting : strategies, principles, and applications*. New Jersey: Humana Press.

Boehncke, W.-H. dan Radeke, H.H. 2007. *Biologics in General Medicine*. Berlin Springer.

Kowalsky R.J. dan Falen S.W. 2011. *Radiopharmaceuticals in Nuclear Pharmacy and Nuclear Medicine*. Washington: American Pharmacists Association.

NFNF4134 Research Project II

This course is a continuation of the NFNF3582 course. In this course, students are exposed to the principles of designing and conducting research projects, analyzing and interpreting data, and dissertation writing. The types of research conducted include laboratory studies, field research, as well as systematic reviews and meta-analysis. Course activities include presenting research proposals, dissertation writing, presenting findings, and oral examinations. Continuous assessment is conducted throughout the session.

Basic Reading

Books related to the field under study.

Journals related to the field under study.

Panduan penulisan tesis Gaya UKM. Edisi Semak 2010. Bangi: Pusat Pengajian Siswazah, Universiti Kebangsaan Malaysia.

NFNF4712 Industrial Pharmacy

This course introduces the rules and regulations that need to be followed in the production of the pharmaceutical industry and discusses production operations and tests that are complied with the pharmacopoeia requirements. Students will also be exposed to the various international standards required to market pharmaceutical products.

Basic Reading

Khar, KR, Vyas, SP, Ahmad, FJ, Jain, GK.(eds). 2013.Lachman/Lieberman’s The Theory and Practice of Industrial Pharmacy. 4th. Ed. New Delhi: CBS Publishers & Distributors.

Taylor, KMG, Aulton, ME (eds.). 2021. Aulton's Pharmaceutics: The Design and Manufacture of Medicines Ed. Ke-6. Amsterdam: Elsevier.

PIC/S Secretariat. 2023. Guide to Good Manufacturing Practice for Medicinal Products, Part I. Geneva: Pharmaceutical Inspection Convention Pharmaceutical Inspection Co-Operation Scheme

British Pharmacopoeia Commission 2023. British Pharmacopoeia 2024. TSO London.

NFNF4812 Quality Assurance of Herbal Medicines

The purpose of this course is to introduce students to the multidisciplinary study and quality assurance of drugs from natural resources. Topics of study comprise of various aspects quality assurance and control of crude drugs, herbal preparations and herbal products, including regulations, manufacturing and standardisation of herbal products, and tests for quality control, safety and efficacy.

Basic Reading

British Pharmacopoeia. 2019. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.
Guidelines on Good Manufacturing Practice for Traditional Medicines and Health Supplements. 2008. Kuala Lumpur: Ministry of Health, Malaysia.
Heinrich, M.; Barnes, J.; Gibbons, S. & Williamson, E.M. 2012. *Fundamentals of Pharmacognosy & Phytotherapy*. Edisi ke-2. London : Churchill Livingstone.
List P.H. & Schmidt P.C. 1990. *Phytopharmaceutical Technology*. Boca Raton: CRC Press.
WHO. 2011. *Quality control methods for herbal materials.* Geneva: World Health Organization.

NFNF4912 Public Health Pharmacy

In addition to contributing to the health of individuals, pharmacists have a role in improving the health of communities & the broader population. This course will consist of topics related to the role of pharmacists in public health. Students will be taught on theories and models related to social and humanity aspects in medicine, its importance and impact towards the society and national health system. The students will also be introduced to government policies related to health management and the national health system.

Basic Reading

Krska, J. 2011. Pharmacy in Public Health. Pharmaceutical Press.
Levin, B., Hurd, P. & Hanson, A. 2018. Introduction to Public Health in Pharmacy. Ed. Ke-2. Oxford University Press.
Rickles, N., Wertheimer, A. & Schommer, J. 2016. Social and Behavioural Aspects of Pharmacy Practice. Ed. Ke-2. Kendall Hunt Publishing.
Truong, H., Bresette, J. & Sellers, J. 2010. The Pharmacist in Public Health: Education, Application and Opportunities. American Pharmacists Association.

NFNF4916 Specialised Pharmacy Services Clerkship

The purpose of this course is to complement the theoretical knowledge from the previous specialised pharmacy service courses. This course contains experiential learning via clerkship cycles in various specialised pharmacy service such as in-patient ward pharmacy, parenteral nutrition and intravenous admixture, cytotoxic preparation and oncology pharmacy, drug information, patient and public education, and clinical pharmacokinetic. Students will apply the theoretical knowledge in a real working environment whilst being monitored by the field preceptor.

Basic Reading

DiPiro, D. et al. 2013. *Pharmacotherapy: A Pathophysiologic Approach*, 10e. USA: McGraw-Hill Education

Zeind C.S and Carvalho M.G. 2017. *Applied Therapeutics (Koda Kimble and Youngs Applied Therapeutics)*. LWW; Eleventh, North American edition.

Winder, P.B. 2017. *Winter's Basic Clinical Pharmacokinetics Sixth Edition*. LWW; Sixth edition.

Drug Information Handbook: A Comprehensive Resource for all Clinicians and Healthcare Professionals (Lexicomp's Drug Reference Handbooks). 27th Edition. Lexi-Comp Inc.

NFNF4143 Pharmaceutical Industrial Training

This course involves students placement for practical training in the 3rd semester for year 3 students for the duration of 6 weeks. The purpose of this course is to enable the students to obtain valuable experience and knowledge as part of their preparation to be a pharmacist. The students will be placed in selective practical settings such as government or private hospitals, pharmaceutical and cosmetic factory, community pharmacy, research centre and government regulatory body.

Basic Reading

Buku panduan dan log Latihan Industri Farmaseutikal, Fakulti Farmasi UKM.

Lokesh Choudhary. 2007. Industrial training and education. New Delhi, India: Mittal Publications.

John Coniglio.2010. General Industry Safety Basics. Bloomington: Xlibris Corporation

NFNF4925 Medicine Management and Community Pharmacy Clerkship

This course will train students about the functions and responsibilities of pharmacists in rural settlements and communities. Students will deliver a direct patient care activity through the Medicine Use Review program at patients' houses and promote the quality use of drugs. Students will also learn the experience in operation and management of community pharmacy.

Basic Reading

Rantucci, M.J. 2007. Pharmacists Talking with Patients. A Guide to Patient Counselling. Ed. Ke 2. Lippincott Williams & Wilkins.

Herfindal, E.T. 2000. Textbook of therapeutics: drug and disease management Ed. Ke-7. Baltimore: Williams & Wilkins.

Young, L. Y. & Koda-Kimble, M. A. 2017 Applied therapeutics: The clinical use of drugs. 11thedn. Vancouver: Applied Therapeutics.

Cipolle, R.J., Strand, L.M. & Morley, P.C. 2012. Pharmaceutical care practice:The Patient-Centered Approach to Medication Management. 3rd edn. New York: Mc Graw-Hill.

Greene, R.J. & Harris, N.D. 2008. Pathology and therapy for pharmacists: A basis for clinical pharmacy. 3rd edn. London: Chapman & Hall.

NFNF4945 Clinical Pharmacy and Pharmacotherapeutic Clerkship

The purpose of this course is to teach the students through experiential learning in order for students to apply knowledge from pharmacology, pharmaceutics, pathophysiology, therapeutics, drug information, medication safety, communication skills and critical thinking in managing patients. Students will interact with other health care professionals in delivering patient-centred care.

Basic Reading

DiPiro, D. et al. 2013. *Pharmacotherapy: A Pathophysiologic Approach, 10e*. USA: McGraw-Hill Education

Zeind C.S and Carvalho M.G. 2017. *Applied Therapeutics (Koda Kimble and Youngs Applied Therapeutics)*. LWW; Eleventh, North American edition.

Winder, P.B. 2017. *Winter's Basic Clinical Pharmacokinetics Sixth Edition*. LWW; Sixth edition.

Drug Information Handbook: A Comprehensive Resource for all Clinicians and Healthcare Professionals (Lexicomp's Drug Reference Handbooks). 27th Edition. Lexi-Comp Inc.

Elective courses

NFNF1512 Pharmacy and Enviromental Sustainability

This course aims to develop awareness of climate-related illness and to encourage sustainable healthcare practices, including patient education about the environmental impact of pharmaceuticals. It focusses on the relationships between climate change, sustainability and pharmaceuticals. Students will be exposed to the impact of pharmaceuticals on the enviroment from drug development to disposal. It is hoped that this course will inculcate awareness about these issues and the students will be able to advocate for `greener' pharmaceutical production and disposal when they are working as healthcare professionals in the future.

Basic Reading

Thomas, F. & Depledge, M. 2015. Medicine `misuse': Implications for health and enviroment. Soc Sci Med 143:81-87.

Centres for Disease Control and Prevention. Climate and health CDC Policy. https://www.cdc.gov/climateandhealth/default.htm

International Pharmaceutical Federation. 2016. FIP Statement of Policy- Enviroment Sustainable Pharmacy Practice: Green Pharmacy. The Hague, The Neatherlands.

Wennmalm, A. & Gunnarsson, B. 2009. Pharmaceutical management through enviromental product labelling in Sweden. Envromen Int 35(5): 775-777.

San Fransisco Department of the Enviroment Regulation #SFE-10-01-SDDDSO. Regulations Implementing the Safe Drug Disposal Stewardship Ordinance (31-15) https://sfenvironment.org/safe-drug-disposal-stewardship-ordinance

NFNF1522 Organisational Skills and Community Service in Pharmacy

This course is conducted through organisation of social entrepreneurship-based projects. Students will be exposed to organisational principles in carrying out a project, as well as understanding social entrepreneurship concepts. Students will be guided to execute a project that benefits the society through activities which can support the economic status of the people in need.

Basic Reading

Beugre, C. 2017. *Social Entrepreneurship: Managing the Creation of Social Value, 1st Edition*. New York: Routledge Taylor & Francis Group.

Dasar Keusahawanan Nasional 2030. 2019. Kementerian Pembangunan Usahawan.

Kickul, J. dan Lyons, T.S. 2016. *Understanding Social Entrepreneurship: The Relentless Pursuit of Mission in an Ever Changing World, 2nd Edition*. New York: Routledge Taylor & Francis Group.

Muhamad, N.S. dan Adham, K.A. 2013. *Social Entrepreneurship as Transformative Service for Societal Well-Being*. Jurnal Pengurusan. 39(2013): 111-118

Wheelan, S. 2015. *Creating Effective Teams: A Guide for Members and Leaders, 5th Edition*. SAGE Publications.

NFNF1562 Cosmetic Sciences

The content of this course consists of discussions on the choice of raw materials, cosmetic preparations such as skin, hair, coloured cosmetics, deodorants and anti-perspirants, baby, dental and perfumes. The quality control and regulatory aspects of the cosmetics in Malaysia are also covered. The course assessment will encompass an evaluation of theoretical knowledge and practical skills.

Basic Reading

King, D. 2013. *In Synchrony with the Heavens: Studies in Astronomical Timekeeping and Instrumentation in Medieval Islamic Civilization*. Boston: Brill.

Swarbrick , J. 2006. *Encyclopedia of Pharmaceutical Technology, Edisi ke-3*. London: Informa Healthcare

Aulton, M.E. 2017. *Pharmaceutics, the Design and Manufacture of Medicines, 5th Edition*. Amsterdam: Elsevier

Draelos, Z.D. & Thaman, L.A. 2006. *Cosmetic Formulation of Skin Care Products (Cosmetic Science and Technology Series Vol. 30)*. New York: Taylor and Francis group, Marcel Dekker.

Draelos, Z.D. 2011. *Cosmetics And Dermatological Problems And Solutions: A Problem Based Approach*. Ed ke-3. New York: Informa Healthcare.

Guidelines for Control of Cosmetic Products in Malaysia. 2009 (rev). Agensi Regulatori Farmasi Negara. Kementerian Kesihatan Malaysia.

Control of Drug & Cosmetic Regulation. 2007. Agensi Regulatori Farmasi Negara, Kementerian Kesihatan Malaysia

NFNF2512 Farmasi Veterinar

This course consists of a series of lectures and assignments. Students will be trained in various aspects related to common diseases and drug use in veterinary medicine. Students will be given assignments to enrich the experience through the activities undertaken.

Basic Reading

Kayne, SB & Jepson, MH. (pnyt.). 2004. Veterinary Pharmacy. London:Pharmaceutical Press.

Khan, CM. 2010. The Merck Veterinary Manual. Merck &Co., Inc. and Merial Limited.

Papich, MG. 2010. Saunders Handbook of Veterinary Drugs: Small and Large Animal. Philadelphia: Elsevier-Health Sciences Division.

Walter, HH. (pytg). 2008. Handbook of Veterinary Pharmacology. Arnes: Iowa State University Press.

NFNF2582 Drugs in Sports

The course consists of lectures and self study. Students will be exposed to various aspects of drug use and abuse in sports. Emphasis is given to the roles of pharmacists in doping, drug analysis, counseling on the use of drugs and medicines. Students will be taught on pharmacology and mechanism of action of drugs through the perspective of sports. Students will also be taught on the treatment and management of athletes with certain diseases. Drugs and doping methods of analysis will also be taught. Furthermore, students will be exposed to the laws and international regulatory of drug doping according to the International Olympic Council (OIC) and the World Anti-Doping Agency (WADA). Continuous assessment will be done throughout the course.

Basic Reading

Cuppett, M. & Walsh, K.M. 2017. General Medical Conditions in the Athlete. USA: Elsevier Mosby.

Garrett, W.E., Kirkendall, D.T. & Squire, D.L. 2001. Principles and Practice of Primary Care Sports Medicine. Philadelphia: Lippincott Williams & Wilkins.

Harries, M., McLatchie, G., Williams, C. & King, J. 2000. ABC of Sport Medicine. Ed. Ke-2. U.K.: BMJ Books.

Mottram, D.R. 2018. Drugs in Sport. Ed. Ke-3. London: Routledge.

Waddington, I. 2000. Sport, Health & Drugs – A Critical Sociological Perspective. London: E & FN Spon.

NFNF3512 Drugs of Abuse and Addiction

In this course, students will be introduced to the pathophysiology of drug addiction, the attendant social issues and health problems, and the legal consequences of drug abuse. The classification and the pharmacology of relevant drugs or substances will be discussed in detail. Students will also be taught about the different models of treatment for drug addiction.

Basic Reading

Ross, D., Kincaid, H., Spurrett, D. & Collins, P. (pytg.). 2010. What is addiction? Cambridge: MIT Press.

Grilly, D.M. & Salamone, J. 2012. Drugs, Brain, and Behavior. Ed. ke 6. Boston: Pearson.

McKim, W.A. & Hancock, S.D. 2013. Drugs and Behavior: An Introduction to Behavioral Pharmacology Ed. ke 7. New Jersey: Pearson.
Dangerous Drugs Act 1952 (Act 234), Drug Dependants (Treatment And Rehabilitation) Act 1983 (Act 283) , Regulations & Rules. International Law Book Services.

NFNF3562 Pharmacy for Community

This course aims to raise awareness and train students' involvement in pharmacy awareness-based health services programs. Students will be exposed to the importance of pharmaceutical health services and the procedures for performing such services. The course will also encourage students to understand the culture of the local community and to appreciate their social responsibility to the community. The course will also expose students to organizational principles such as planning, implementing, leading the program, collaborating and taking an active role in the group.

Basic Reading

Shaharuddin Ahmad et al. 2010. Mengurus Persatuan: Proses dan Kemahiran. Bangi: Penerbit UKM.
Saran KG, Prabha S, Kamela S (penyt).2012. The Power of Engagement - A Selection of inspiring Community Engaged Initiatives. UKM Press: Malaysia.
Lussier RN, Achua CF. 2009. Effective leadership (international student edition). Canada: Thomson South Western Publishing.
Thomson N. 2018. Effective communication: A guide for the people professions. New York: Palgrave Mac Millan.
Adair J. 2013. Decision making and problem solving strategies. London: Kogan Page.
Rantucci, M.J. 2007. Pharmacists Talking with Patients. A Guide to Patient Counselling. Ed. Ke 2. LippincottWilliams & Wilkins.

NFNF4522 Pharmacy Business Administration

The main objective of this course is for students to be able to plan, develop and operate a pharmacy business in a creative and innovative manner. This course is delivered through lectures, discussion in class using case studies, which includes operational management, human resource, finance, goods and services and value added services. Risk management in pharmacy practice as well as application in managing certain situations in pharmacy practice will also be delivered to students. Furthermore, students will work in small groups to develop a pharmacy business model whereby students will build marketing strategies, websites and prepare business ventures to be presented for pitching purposes. This course will also focus in experiential learning where students will do case studies based on local pharmacy practices, which include individually owned pharmacy community or chained.

Basic Reading

Sloan, F.A. & Hsien, C.R. 2007. Pharmaceutical Innovation: Incentives, Competition and Cost-Benefit Analysis in International Perspective. New York: Cambridge University Press.

Desselle, S. P., Zgarrick, D.P. & Alston, G.L. 2012. Pharmacy Management. 3rd ed. McGraw-Hill Companies, United States.

Tootelian, D.H., Wertheimer, A.I. & Mikhailitchenko, A. 2012. Essentials of Pharmacy Management. 2nd ed. Pharmaceutical Press, Great Britain

Bradley-Baker, L.R. 2012. Getting Started as a Pharmacy Manager. American Pharmacists Association, United States.

Chisholm-Burns, M.A., Vaillancourt, A.M. & Shepherd, M. 2014. Pharmacy Management, Leadership, Marketing & Finance. 2nd ed. Jones & Bartlett Learning, United States.

NFNF4532 Nutrition in Community Pharmacy Practice

Students will be exposed to general aspects of nutrition that are useful in the practice of community pharmacy. The topics include the concept of food and nutrition; introduction to body composition and anthropometry; balanced diet; reserve requirements and the food pyramid diet; substrate metabolism and utilization; fluid and electrolyte balance; malnutrition; nutrition for infants, the elderly, pregnant women and nursing; the problem of obesity, overweight and immune system; nutrition in sport; food composition tables and food labels; vitamins, minerals and supplements; healthy food; genetically modified food; interactions between food and drugs; chemical additives in food; regulatory and food law. Through this course, students will be ready to serve as community pharmacists to provide basic knowledge on food and health products at the community pharmacy.

Basic Reading

Aluko RE 2012. Functional foods and nutraceuticals. NY : Springer Daries H. 2012. Nutrition for sport and exercise: a practical guide. Chichester, West Sussex: Wiley-Blackwell.

Enna SJ, Norton S. 2012. Herbal supplements and the brain: understanding their health benefits and hazards. NJ, USA : FT Press.

Meckling, K.A. 2007. Nutrient-Drug Interactions. Florida, USA: Taylor & Francis Gp.

Wiffen P, Mitchell M, Snelling M, Stoner N (Eds) 2012. Oxford handbook of clinical pharmacy Oxford: Oxford University Press.

UNIVERSITI KEBANGSAAN MALAYSIA REGULATIONS (BACHELOR'S DEGREE STUDIES 2024)

The latest regulations can be referred to on the official UKM website

ADDITIONAL REQUIREMENTS FOR BACHELOR OF PHARMACY (HONOURS) PROGRAM AT THE FACULTY OF PHARMACY

1. Admission Requirements

1.1. Basic Educational Requirements

1.1.1. Basic Education Certification Basic Education

Candidates must have passed the Sijil Pelajaran Malaysia (SPM) examination or its equivalent with credit in Bahasa Malaysia/Bahasa Melayu or a credit in Bahasa Malaysia/Bahasa Melayu July Paper, a credit in English, and a pass in History. Candidates must also have at least a Grade B in Chemistry, Biology, Physics, Mathematics, and minimum C for Bahasa Melayu, Bahasa Inggeris and History

or:

For international candidates, they must have completed 12 years of education at the primary and secondary levels. Candidates must also have at least a Grade B in Chemistry, Biology, Physics, Mathematics/ Additional Mathematics, and one other subject;

and:

1.1.2. Malaysian Higher School Certificate (STPM)

1.1.2.1. Candidates must have passed the Malaysian Higher School Certificate (STPM) examination with a minimum CGPA of 3.50 and obtained at least a Grade B (NGMP 3.00) in the subjects of Chemistry, Biology, and Physics/Mathematics/Additional Mathematics;

or:

1.1.3. Matriculation/Foundation Certificate

1.1.3.1. Candidates must have passed the Matriculation/Foundation Certificate program with a minimum CGPA of 3.50 and obtained at least a Grade B (NGMP 3.00) in the subjects of Chemistry, Biology, and Physics/Mathematics;

or:

1.1.4. Diploma/Equivalent

1.1.4.1. Pass the previous year's STPM examination with a minimum CGPA of 3.50 and obtain at least a Grade B (NGMP 3.00) in the subjects of Chemistry, Biology, and Physics/Mathematics;

or:

1.1.4.2. Pass the Matriculation/Foundation Certificate program from the previous year with a minimum CGPA of 3.50 and obtain at least a Grade B (NGMP 3.00) in the subjects of Chemistry, Biology, and Physics/Mathematics;

or:

1.1.4.3. Possess a Diploma in Pharmacy recognized by the University and the Government of Malaysia with a minimum CGPA of 3.50;

or:

1.1.4.4. Possess a Diploma in Science recognized by the University and the Government of Malaysia with a minimum CGPA of 3.75;

or:

1.1.4.5. Hold an A-Level certificate with at least Grade B in the following subjects:

- Biology
- Chemistry
- Mathematics/Physics

or:

1.1.4.6. Hold an International Baccalaureate (IB) Diploma with a minimum score of 30 and at least a score of 5 at High Level (HL) in the following subjects:

- Biology
- Chemistry
- Mathematics
- and passes in other subjects at Standard Level (SL).

or:

1.1.4.7. Bachelor's Degree in Science (in a related field) with a minimum CGPA of 3.00;

Or:

1.1.4.8. Senior School Certificate /Tawjihiya/other equivalent international qualification as determined by the Malaysian Pharmacy Board, with an aggregate of 80% or equivalent, and at least 80% or equivalent in the following subjects:

- Biology
- Chemistry
- Mathematics/Physics

1.1.5. Other Qualifications

1.1.5.1. Pass the test/interview as determined by the faculty.

and:

1.1.6. Malaysian University English Test (MUET).

1.1.6.1. Candidates must obtain at least Level 4 (Band 4) (for 2021 and above) or Level 3 (Band 3.0) (for 2020) in the Malaysian University English Test (MUET).

1.1.6.2. For international candidates or candidates with foreign qualifications, they must meet the minimum English language requirements of MUET Level 4 (Band 4) (for 2021 and above) or Band 3.0 (for 2020) or IELTS Band 5.5 or TOEFL IBT Band 46 or its equivalent.

1.1.6.3. Candidates may be exempted from English language proficiency as determined by the program or program standards set by the Malaysian Qualifications Agency (MQA) if:

1.1.6.3.1. The candidate is an international candidate from a country where English is the official language or:

1.1.6.3.2. The candidate holds academic qualifications from an overseas institution that uses English as the medium of instruction entirely.

1.2. Other admission requirements are as stipulated in the National University of Malaysia Regulations 2020.

2. Study Structure

Allowed Duration

Students must pursue the Bachelor of Pharmacy (Honours) program for a minimum of four years or eight (8) semesters and not more than twelve (12) semesters, calculated from the date of the first registration, to obtain a bachelor's degree in pharmacy. The third semester of study is not counted towards determining the maximum allowable study semesters.

3. Assessment System and Grade Point Average (GPA)

3.1. Students are allowed to repeat a course they have failed a maximum of two (2) times during their course of study.

3.2. Students must obtain at least 50% in both continuous assessment components and the final examination.

4. Qualification Requirements for Continuing Studies

4.1 A student is considered to have failed and will be dismissed from the programme if they still obtain a failing grade (C-, D+, D, or E) for the core program course after the second time repeat.

5. Other Provisions

5.1. A student will not be allowed to take the examination for a course if the Dean has certified that the student:

5.1.1. Has not attended at least 80% of the course requirements (interactive learning sessions and assessment sessions) as prescribed by the Faculty.

5.1.2. Has plagiarized or cheated in any form of assessment (seminar, report, case study, logbook) specified in a course.

5.1.3. Has exhibited inappropriate behavior and conduct as a pharmacy student that affects the pharmacy profession.

Varsiti Kita

Lihat kampusku yang tenang
Damainya alam ciptaan Tuhan
Panduan ilmu dan keimanan
Amal dan jernih digabungkan
Lautan ilmu kita harumkan
Sumber ilmuwan berkembangan

Inilah varsiti kita
Ditengahkan hasrat rakyat kita
Dari mula untuk semua
Bagai tanda perjuangan kita

Bangun berbakti membela
Memupuk insan jiwa bertakwa
Memimpin manusia semua
Kenal akan adat unggulnya
Membina Negara senantiasa
Maju berilmu dan bahagia

Inilah varsiti kita
Ditengahkan hasrat rakyat kita
Dari mula untuk semua
Bagai tanda perjuangan kita

Penggubah
Nazri bin Ahmad

Ilmu, Mutu dan Budi

Ilmu, Mutu dan Budi
Itulah harga diri
Hidup siswa siswi
Harapan ibu pertiwi

Ilmu, Mutu dan Budi
Itulah pelita hati
Asas pembinaan peribadi
Untuk menabur bakti

Itulah pegangan hidup kami
Sumber kekuatan rohani
Mutiara peradaban asli
Titian hidup abadi

Ilmu, Mutu dan Budi
Itulah pusaka sejati
Menuju cita-cita murni
Semoga Tuhan memberkati

Penggubah
Zubir bin Ali

Lirik
Hj.Salleh bin Hj.Yusof

Jawatankuasa Penerbitan Buku Panduan Prasiswazah Fakulti Farmasi Sesi Akademik 2025-2026

Penasihat
Prof. Dr. Mohd Makmor Bakry
Dekan

Pengerusi
Prof. Madya Dr. Ernieda Md Hatah
Timbalan Dekan (Akademik)

Ahli Jawatankuasa
Prof. Madya Dr. Adyani Md Redzuan
Penolong Dekan (Kualiti dan Strategi)

Dr. Shamin Mohd Saffian
Penolong Dekan (Keusahawanan)

Dr. Mohd Kaisan Mahadi
Penolong Dekan (Pengajaran & Citra)

Prof. Madya Dr. Noraida Mohamed Shah
Ketua Program Prasiswazah

Prof. Madya Dr. Lam Kok Wai
Penyelaras Disiplin Kimia Farmaseutikal

Dr. Nor Syafinaz Yaakob
Penyelaras Disiplin Biofarmasi dan Farmakologi

Prof. Madya Dr. Fazren Azmi
Penyelaras Disiplin Farmaseutik

Dr. Nor Asyikin Mohd Tahir
Penyelaras Disiplin Amalan Farmasi

Setiausaha
Encik Thohir Hasim
Penolong Pendaftar

Puan Noor Azlin Bolki
Pembantu Tadbir (P/O)

Reka Bentuk
Dr. Shamin Mohd Saffian
Penolong Dekan (Keusahawanan)

Dr. Nur Vaizura Mohamad
Penyelaras Komunikasi Strategik