## Chemistry Applicable to students admitted in 2013-14

Group B: CHEM1070       Group C: MATH1520 (preferred) or 1010         A course from the following       Group A: LSCI1000 or 1001 or 1002         Group D[a]: PHYS1001 or 1002 or 1111       Group E: STAT1011 or 1012         2.       Required Courses :       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       37         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12	Students ollows:	s are required to complete a minimum of 58 units (70 units for Enrichment	t Stream) of courses a
Group B: CHEM1070       Group C: MATH1520 (preferred) or 1010         A course from the following       Group A: LSC11000 or 1001 or 1002         Group A: LSC11000 or 1001 or 1002 or 1111       Group E: STAT1011 or 1012         2.       Required Courses :       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       37         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990       (with Department approval)         (c)       Two courses from the following lists:       1         (i)       Undergraduate electives: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4785, 4788; or       49         (fHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 5530, 5540, 5530, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         Group Guerses:       49       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         Greequired Courses:       12         (a)			Units
Group C: MATH1520 (preferred) or 1010         A course from the following         Group A: LSCI1000 or 1001 or 1002         Group D[a]: PHYS1001 or 1002 or 1111         Group E: STAT1011 or 1012         2.       Required Courses:       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       12         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990       (with Department approval)         (c)       Two courses from the following lists:       12         (i)       Undergraduate electives: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       5330, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12 <th>1.</th> <th>Faculty Package (for Major and Enrichment Stream):</th> <th>9</th>	1.	Faculty Package (for Major and Enrichment Stream):	9
A course from the following       Group A: LSCI1000 or 1001 or 1002         Group D[a]: PHYS1001 or 1002 or 1111       Group E: STAT1011 or 1012         2.       Required Courses :       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3320, 33410, 3810, 3830, 3860, 3870       37         3.       Elective Courses:       12         a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         b)       One combination from CHEM4030/4040 and CHEM4980/4990       (with Department approval)         (c)       Two courses from the following lists:       12         (i) <u>Undergraduate electives</u> (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       58         Enrichment Stream       49       2         2.       Required Courses:       49         2.       Required Courses:       49         3.       Elective Courses:       49         3.       S830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         a)       Forur undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4430, 4430, 4630, 4460, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       49         b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540,		Group B: CHEM1070	
Group A: LSCI1000 or 1001 or 1002       Group D[a]: PHYS1001 or 1002 or 1111         Group D[a]: PHYS1001 or 1012       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       37         S.       Elective Courses:       12         (a)       One combination from CHEM4030/4040 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990       (with Department approval)         (c)       Two courses from the following lists:       12         (i)       Undergraduate electives: (HEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4785, 4788; or       5330, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3310, 3320, 33410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses:       49         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from:       12         (c)       Two graduate electives (with Department approval) from: <td></td> <td>Group C: MATH1520 (preferred) or 1010</td> <td></td>		Group C: MATH1520 (preferred) or 1010	
Group D[a]: PHYS1001 or 1002 or 1111       Group E: STAT1011 or 1012         2.       Required Courses :       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       37         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990 (with Department approval)       12         (c)       Two courses from the following lists:       10         (i)       Undergraduate electives: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses:       49         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400,		A course from the following	
Group E: STAT1011 or 1012       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       37         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990       (with Department approval)         (c)       Two courses from the following lists:       12         (i)       Undergraduate electives: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2300, 2310, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530,		Group A: LSCI1000 or 1001 or 1002	
2.       Required Courses :       37         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       37         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990 (with Department approval)       12         (c)       Two courses from the following lists:       12         (i) <u>Undergraduate electives</u> : CHEM4100, 4200, 4400, 4430, 4630, 4640, 4410, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 3840, 3860, 3870, 4980/4990       58         Stream         2.       Required Courses:       49         3.       Elective Courses:       49         3.       Elective Courses:       12         3.       Elective Courses:       12         3.       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4530, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         3.       Four undergraduate electives (wit		-	
CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       12         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990 (with Department approval)       12         (c)       Two courses from the following lists:       10         (i) <u>Undergraduate electives</u> : CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       13         (ii) <u>Graduate electives</u> (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       58         Enrichment Stream       2       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5780, 5781, 5782, 5783, 5784, 5910, 5930       12		Group E: STAT1011 or 1012	
CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       12         3.       Elective Courses:       12         a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         b)       One combination from CHEM4030/4040 and CHEM4980/4990 (with Department approval)       12         c)       Two courses from the following lists:       10         i) <u>Undergraduate electives</u> : CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       11         ii) <u>Graduate electives</u> (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       58         Enrichment Stream       2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       12	,	Required Courses :	37
2830, 2850, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870       12         3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990 (with Department approval)       12         (c)       Two courses from the following lists:       11         (i) <u>Undergraduate electives</u> : CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       13         (ii) <u>Graduate electives</u> (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       58         Enrichment Stream       2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5780, 5781, 5782, 5783, 5784, 5910, 5930       12	2.	1	51
3.       Elective Courses:       12         (a)       One combination from CHEM3230/3820 and CHEM3330/3840       12         (b)       One combination from CHEM4030/4040 and CHEM4980/4990 (with Department approval)       (with Department approval)         (c)       Two courses from the following lists:       (i)       Undergraduate electives: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or       (ii)       Graduate electives (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       58         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930			
(a)       One combination from CHEM3230/3820 and CHEM3330/3840         (b)       One combination from CHEM4030/4040 and CHEM4980/4990         (with Department approval)       (with Department approval)         (c)       Two courses from the following lists:         (ii)       Undergraduate electives: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or         (iii)       Graduate electives (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total:         58         Enrichment Stream         2.       Required Courses:       49       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930		,,, ,, _,	
b)       One combination from CHEM4030/4040 and CHEM4980/4990 (with Department approval)         (c)       Two courses from the following lists:         i) <u>Undergraduate electives</u> : CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or         (ii) <u>Graduate electives</u> (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total:         58         Enrichment Stream         2.       Required Courses:         49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	3.	Elective Courses:	12
(with Department approval)         (c)       Two courses from the following lists:         (i) <u>Undergraduate electives</u> : CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or         (ii) <u>Graduate electives</u> (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total:         58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	(a)	One combination from CHEM3230/3820 and CHEM3330/3840	
(c)       Two courses from the following lists:         (i)       Undergraduate electives: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or         (ii)       Graduate electives (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total:         58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	(b)	One combination from CHEM4030/4040 and CHEM4980/4990	
<ul> <li>(i) <u>Undergraduate electives</u>: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or</li> <li>(ii) <u>Graduate electives</u> (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930</li> <li>Total: 58</li> <li>Enrichment Stream</li> <li>2. Required Courses: 49</li> <li>CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990</li> <li>3. Elective Courses: 12</li> <li>(a) Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and</li> <li>(b) Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930</li> </ul>			
4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; or         (ii)       Graduate electives (with Department approval): CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       12		-	
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5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       Total: 58         Total: 58         Enrichment Stream         2.       Required Courses: 49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses: 12       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	/···		
5782, 5783, 5784, 5910, 5930         Total: 58         Enrichment Stream         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3230, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       49         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	(11)		
Enrichment Stream       49         2.       Required Courses:       49         CHEM2120, 2200, 2270, 2300, 2310, 2320, 2400, 2408, 2820, 2830, 2850, 3130, 3220, 3320, 3330, 3410, 3810, 3820, 3830, 3840, 3860, 3870, 4980/4990       410         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930			
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3830, 3840, 3860, 3870, 4980/4990       12         3.       Elective Courses:       12         (a)       Four undergraduate electives from: CHEM4100, 4200, 4400, 4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and       12         (b)       Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930       12		1	
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<ul> <li>4430, 4630, 4640, 4710, 4720, 4730, 4780, 4781, 4784, 4785, 4788; and</li> <li>(b) Two graduate electives (with Department approval) from: CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930</li> </ul>			12
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CHEM5080, 5530, 5540, 5550, 5620, 5630, 5642, 5660, 5680, 5780, 5781, 5782, 5783, 5784, 5910, 5930	(b)		
5780, 5781, 5782, 5783, 5784, 5910, 5930	(-)		
Total: 70			
		Total:	70

GPA for honours classification.

- 2. Potential Chemistry Majors are strongly recommended to take CHEM1870 as basic training to prepare for laboratory classes in upper years.
- 3. A student in the final year of attendance may, <u>under special circumstances</u> and with <u>written</u> approval by the Department, select CHEM4480 and/or 4490 to substitute up to two units of any lecture or laboratory courses in the Chemistry Programme.
- [a] Chemistry Majors who have not selected either one course from PHYS1001, 1002 or 11111 in the Faculty Package will have to take and pass one of them before graduation. This course will be used to substitute one elective course in the graduation requirement.

Chemistry		
	Recommended Course Pattern	Units
First Year of	1 <sup>st</sup> term	
Attendance	Faculty Package: CHEM1070	3
	Major Required:	
	Major Elective(s):	
	2 <sup>nd</sup> term	
	Faculty Package: MATH1520 or 1010; a course from Group A, D, E	6
	Major Required:	
	Major Elective(s):	
Second Year of	1 <sup>st</sup> term	
Attendance	Major Required: CHEM2120, 2310, 2400, 2408, 2850	10
	Major Elective(s):	
	2 <sup>nd</sup> term	
	Major Required: CHEM2200, 2270, 2300, 2320, 2820, 2830	11
	Major Elective(s):	
Third Year of	1 <sup>st</sup> term	
Attendance	Major Required: CHEM3220, 3320, 3810, 3830	8
	Major Elective(s):	
	2 <sup>nd</sup> term	
	Major Required: CHEM3130, 3410, 3860, 3870	8
	Major Elective(s): CHEM3230, 3820 (or 3330, 3840)	4
Fourth Year of	1 <sup>st</sup> term	
Attendance	Major Required:	
	Major Elective(s): CHEM4030 (or 4980), one elective course	2
	2 <sup>nd</sup> term	
	Major Required:	
	Major Elective(s): CHEM4040 (or 4990), one elective course	6
	Total (Major Requirement including Faculty Package):	58

Chemistry (Enrichment Stream)		
	Recommended Course Pattern	Units
First Year of	1 <sup>st</sup> term	
Attendance	Faculty Package: CHEM1070	3
	Major Required:	
	Major Elective(s):	
	2 <sup>nd</sup> term	
	Faculty Package: MATH1520 or 1010; a course from Group A, D, E	6

	Major Required:	
	Major Elective(s):	
Second Year of	1 <sup>st</sup> term	
Attendance	Major Required: CHEM2120, 2310, 2400, 2408, 2850	10
	Major Elective(s):	
	2 <sup>nd</sup> term	
	Major Required: CHEM2200, 2270, 2300, 2320, 2820, 2830	11
	Major Elective(s):	
Third Year of	1 <sup>st</sup> term	
Attendance	Major Required: CHEM3220, 3320, 3330, 3810, 3830, 3840	12
	Major Elective(s):	
	2 <sup>nd</sup> term	
	Major Required: CHEM3130, 3230, 3410, 3820, 3860, 3870	12
	Major Elective(s):	
Fourth Year of	1 <sup>st</sup> term	
Attendance	Major Required:	
	Major Elective(s): CHEM4980, three elective courses	6
	2 <sup>nd</sup> term	
	Major Required:	
	Major Elective(s): CHEM4990, three elective courses	10
	Total (Major Requirement including Faculty Package):	70

## Minor Programme Title

Chemistry

## **Minor Programme Requirement** Students are required to complete a minimum of 20 units of courses as follows: Units 1. **Required Courses:** CHEM2120, 2200, 2300, 2400 8 2. Elective Courses: Three laboratory courses from: CHEM2408, 2820, 2830, 2850 6 (a) At least six units from: CHEM3130, 3220, 3320, 3410, 4430, (b) 6 4788, ENSC4525, 4535 **Total:** 20

Course List			
Course Code	Course Title	Unit(s)	
CHEM1070	Principles of Modern Chemistry	3	
CHEM1072	General Chemistry	3	
CHEM1870	Essential Experimental Chemistry	2	
CHEM1280	Introduction to Organic Chemistry and Biomolecules	3	
CHEM1380	Basic Chemistry for Engineers	3	
CHEM2270	Student Oriented Teaching	1	
CHEM2120	Main Group Chemistry	2	
CHEM2850	Inorganic Chemistry Laboratory I	2	
CHEM2200	Organic Functional Groups: Structure and Reactivity	2	

CHEM2820	Organic Chemistry Laboratory I	2
CHEM2310	Chemical Bonding	2
CHEM2300	Thermodynamics and Chemical Equilibrium	2
CHEM2830	Physical Chemistry Laboratory I	2
CHEM2320	Fundamentals of Spectroscopic Analysis	2
CHEM2320 CHEM2382	Chemistry of Life	2
CHEM2302 CHEM2400	Analytical Chemistry	2
CHEM2408	Analytical Chemistry Laboratory I	2
CHEM2822	Introductory Organic Chemistry Laboratory	1
CHEM3130	Transition Metal Chemistry	2
CHEM3150 CHEM3860	· · · · · · · · · · · · · · · · · · ·	2
CHEM3220	Inorganic Chemistry Laboratory II           Organic Reactions: Reactivity and Selectivity	2
CHEM3220 CHEM3810	Organic Chemistry Laboratory II	2
CHEM3230		2
	Physical Organic Chemistry and Aromatics	2
CHEM3820	Organic Chemistry Laboratory III Chemical Kinetics	2
CHEM3320		
CHEM3830	Physical Chemistry Laboratory II	2
CHEM3410	Instrumental Analysis	2
CHEM3870	Analytical Chemistry Laboratory II	2
CHEM3330	Molecular Spectroscopy	2
CHEM3840	Physical Chemistry Laboratory III	2
CHEM4030	Problem-based Learning I	0
CHEM4040	Problem-based Learning II	4
CHEM4480	Undergraduate Special Project I	<u>l</u>
CHEM4490	Undergraduate Special Project II	1
CHEM4980	Undergraduate Thesis I	0
CHEM4990	Undergraduate Thesis II	4
Undergraduate Elect		2
CHEM4100	Advanced Inorganic Chemistry	2
CHEM4200	Organic Chemistry in Life	2
CHEM4400	Advanced Analytical Chemistry	2
CHEM4430	Practices in Testing Laboratory	2
CHEM4630	Asymmetric Organic Synthesis	2
CHEM4640	Pharmaceutical Chemistry	2
CHEM4710	Quantum Chemistry	2
CHEM4720	Molecular Modelling	2
CHEM4730	Special Topics in Chemistry	2
CHEM4780	Mass Spectrometry	2
CHEM4781	NMR Spectroscopy	2
CHEM4784	Bioanalytical Methods	2
CHEM4785	Industrial Chemistry	2
CHEM4788	Chemical Applications in Forensic Science	2
Graduate Electives:		
CHEM5080	Introduction to Macromolecules	2
CHEM5530	Organometallic Chemistry	2
CHEM5540	Bioinorganic Chemistry	2
CHEM5550	Organolanthanide Chemistry	2
CHEM5620	Synthetic Methods in Organic Chemistry	2
CHEM5630	Synthesis of Natural Products	2
CHEM5642	Supramolecular Chemistry	2
CHEM5660	Advanced Organic Chemistry: Structures and Mechanisms	2
CHEM5680	Introduction to Chemical Biology	2
CHEM5780	Mass Spectrometry of Biomolecules	2

CHEM5781	Advanced NMR Spectroscopy	2
CHEM5782	Principles of Biomolecular NMR Spectoscopy	2
CHEM5783	Introduction to Laser Spectroscopy	2
CHEM5784	Instrumental Analysis of Biomolecules	2
CHEM5910	Current Topics in Chemistry	2
CHEM5930	Molecular Quantum Mechanics	2