Contents

1. Aims and Scope 4
2. Assessment Test 4
3. Master’s Degree Coursework 4
   3.1 Core Courses 4
   3.2 Elective Courses 4
   3.3 Thesis Research 5
   3.4 Graduate Seminar 5
   3.5 Winter Enrichment Program 5
   3.6 M.S. Thesis Option 5
      3.6.1 M.S. Thesis Defense Requirements 5
      3.6.2 M.S. Thesis Defense Committee 6
4. Doctor of Philosophy 6
   4.1 Ph.D. Course Requirements 6
   4.2 Ph.D. Designation of Dissertation Advisor 7
   4.3 Ph.D. Candidacy 7
      4.3.1 Subject-based Qualifying Exam 7
      4.3.2 Ph.D. Dissertation Proposal Defense Committee 7
      4.3.3 Ph.D. Dissertation Proposal Defense 8
   4.4 Ph.D. Defense 8
      4.4.1 Ph.D. Dissertation Defense Committee 8
      4.4.2 Ph.D. Dissertation Defense 9
5. Program Courses and Descriptions 11
6. KAUST University Requirements; Office of the Registrar 15
7. Master’s Program 16
   7.1 Admissions 16
   7.2 Master’s Degree Requirements 16
      7.2.1 Thesis Requirements 16
      7.2.2 Non-Thesis Option 17
8. Ph.D. Program 18
   8.1 Admissions 18
   8.2 Ph.D. Degree Requirements 18
   8.3 Candidacy 19
   8.4 Dissertation Research Credits 19
   8.5 Dissertation and Dissertation Defense 19
8.6 Ph.D. Dissertation Defense Committee

9. Program Descriptions
   9.1 University Wide Courses
      9.1.1 English as a Second Language
      9.1.2 Enrichment Program WEP Courses
      9.1.3 Innovation and Economic Development
         IED210 Technology Innovation and Entrepreneurship
      9.1.4 IED220 New Venture and Product Innovation Challenge

10. Grading
    10.1 Incomplete Grades
    10.2 In Progress Grades
    10.3 Research or Seminar Courses
    10.4 Cumulative Grade Point Average

11. Academic Standing

12. Transferring Credits

13. Policy for Adding and Dropping Courses

14. Program Planning
1. Aims and Scope
The Chemical and Biological Engineering Program (CBE) aims to offer students opportunities to develop real-world solutions to global challenges by performing rigorous coursework studies and cutting-edge researches in chemical engineering and biological engineering. These include the development of new materials and processes for gas and liquid separations, for water desalination, catalysis, sustainable energy and nanotechnology as well as the advancement of new ideas in process design and control and reactor design.

2. Assessment Test
Students are admitted to KAUST from a wide variety of programs and backgrounds. In order to facilitate the design of an appropriate study plan for each individual student, all incoming students will be required to take an assessment during orientation week. There is no grade for the assessment.

The purpose of the assessment is to determine whether students have mastered the prerequisites for undertaking graduate-level courses taught in the program. The Advisor uses the results of the assessments to design, if necessary, a remedial study plan with a list of courses aimed at addressing content areas that may impede a student from successful completion of the degree requirements. Students are encouraged to prepare for the assessment by refreshing the general knowledge gained from their undergraduate education before arriving at KAUST. The remedial study plan requirements must be satisfactorily completed, in addition to the University degree requirements.

3. Master’s Degree Coursework
The Master of Science (M.S.) degree at KAUST is a 36 credit program. Students are expected to complete the M.S. degree in three (3) semesters and one (1) summer session. Degree requirements are divided into three (3) sections:

- Core Curriculum;
- Elective Curriculum; and
- Research/Capstone Experience.

The M.S. degree is awarded upon successful completion of a minimum of 36 credit hours. A minimum GPA of 3.0 must be achieved to graduate. Individual courses require a minimum of a B- for course credit.

3.1 Core Courses (12 credit hours)
This portion of the degree is designed to provide a student with the background needed to establish a solid foundation in the program area.

To complete these twelve (12) credit hours in Chemical and Biological Engineering, the student should register for four (4) core courses among those listed in the Master’s Course List.

- CBE 201: Chemical Thermodynamics
- CBE 202: Advanced Transport Phenomena
- CBE 203: Advanced Reaction Engineering
- CBE 336: Membrane Science and Membrane Separation Processes

3.2 Elective Courses (9 credit hours)
This portion of the degree is designed to allow each student to tailor his/her educational experience to meet individual research and educational objectives. The four (4) elective courses are selected in coordination with the student’s Academic Advisor and/or Research Advisor. Courses from programs other than CBE may be used as electives.
3.3 Thesis Research (15 credit hours):
This portion of the degree is mandatory and it is designed to allow each student to gain the required hands-on experience.

- CBE 297: Thesis Research

3.4 Graduate Seminar
All students are required to register and receive satisfactory grades for three (3) semesters of the program CBE 298: Chemical & Biological Engineering Graduate Seminar to meet degree requirements.

3.5 Winter Enrichment Program
Students are required to satisfactorily complete at least one (1) full Winter Enrichment Program (WEP).

3.6 M.S. Thesis Option
Students wishing to pursue the thesis option must apply by the ninth week of their second semester for a thesis and must have at least a 3.2 cumulative GPA.

A minimum of 15 credits of Thesis research (297) is required. Students are permitted to register for more than 15 credits of M.S. thesis research as necessary and with the permission of the thesis Advisor.

3.6.1 M.S. Thesis Defense Requirements
An Oral Defense of the M.S. thesis is required although it may be waived by the Dean’s Office under exceptional circumstances. A requirement of a public presentation and all other details are left to the discretion of the Thesis Committee.
A written thesis is required. It is advisable that the student submit a final copy of the thesis to the Thesis Committee members at least two weeks prior to the defense date.

- Students are required to comply with the university formatting guidelines provided by the library http://libguides.kaust.edu.sa/theses.
- Students are responsible for scheduling the thesis defense date with his/her Thesis Committee.
- A pass is achieved when the committee agrees with no more than one dissenting vote, otherwise the student fails. The final approval must be submitted at the latest two weeks before the end of the semester.

3.6.2 M.S. Thesis Defense Committee
The M.S. Thesis Defense committee, which must be approved by the student’s Dean, must consist of at least three members and typically includes no more than four members. At least two of the required members must be KAUST faculty. The Chair plus one additional faculty member must be affiliated with the student’s program. This membership can be summarized as:

<table>
<thead>
<tr>
<th>Member</th>
<th>Role</th>
<th>Program Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chair</td>
<td>Within Program</td>
</tr>
<tr>
<td>2</td>
<td>Faculty</td>
<td>Within Program</td>
</tr>
<tr>
<td>3</td>
<td>Faculty or Approved Research Scientist</td>
<td>Outside Program</td>
</tr>
<tr>
<td>4</td>
<td>Additional Faculty</td>
<td>Inside or outside KAUST</td>
</tr>
</tbody>
</table>

Notes:
- Members 1 – 3 are required. Member 4 is optional.
- Co-chairs may serve as Member 2, 3 or 4, but may not be a Research Scientist.
• Adjunct Professors and Professor Emeriti may retain their roles on current committees, but may not serve as chair on any new committees.

• Professors of Practice and Research Professors may serve as Members 2, 3 or 4 depending upon their affiliation with the student’s program. They may also serve as co-chairs.

• Visiting Professors may serve as Member 4.

View a list of faculty and their affiliations: https://www.kaust.edu.sa/en/study/faculty/faculty-advisors-by-program-areas

4. Doctor of Philosophy
The Doctor of Philosophy (Ph.D.) degree is designed to prepare students for research careers in academia and industry. It is offered exclusively as a full-time program.

There is a minimum residency requirement at KAUST of 3.5 years for students entering with a B.S. degree and 2.5 years for students entering with an M.S. degree. A minimum GPA of 3.0 must be achieved on all Doctoral coursework. Individual courses require a minimum of a B- to earn course credit.

The Ph.D. degree includes the following steps:

• Securing a Dissertation Advisor.

• Successful completion of program coursework.

• Passing the Qualifying Examination.

• Passing the Dissertation Proposal Defense to obtain candidacy status.

• Preparing, submitting and successfully defending a Doctoral dissertation.

4.1 Ph.D. Course Requirements
The required coursework varies for students entering the Ph.D. degree with a B.S. degree or a relevant M.S. degree. Students holding a B.S. degree must complete all program core/mandatory courses and elective courses outlined in the M.S. degree section and are also required to complete the Ph.D. courses below. Students entering with a B.S. degree may also qualify to earn the M.S. degree by satisfying the M.S. degree requirements; however, it is the student’s responsibility to declare their intentions to graduate with an M.S.

Students entering the Ph.D. degree with a relevant M.S. degree must complete the requirements below, though additional courses may be required by the Dissertation Advisor.

Ph.D. Courses

• Two 300-level courses.

• Graduate Seminar 398 (non-credit): students are required to register and receive a satisfactory grade for every semester the program requires they attend.

• Winter Enrichment Program: Students are required to satisfactorily complete at least one full Winter Enrichment Program (WEP) as part of the degree requirements. Students who completed WEP requirements while earning the M.S. degree are not required to enrol in a full WEP for a second time in the Ph.D. degree.

Students entering the program with an M.S. degree from KAUST may transfer unused coursework toward the Ph.D. program requirements subject to program level approval. Students transferring from another university’s Ph.D. program may receive some dissertation research and coursework credit on a case by case basis for related work performed at the original institution upon approval by the Dean. However, such students must still satisfy the Qualifying Exam and Dissertation Proposal Defense requirements at KAUST. If these milestones were passed at the original institution, the proposal may be the same if approved by the Dissertation Advisor.
4.2 Ph.D. Designation of Dissertation Advisor
The selected Dissertation Advisor must be a full time program-affiliated assistant, associate or full professor at KAUST. The student may also select an advisor from another program at KAUST. This advisor can only become project-affiliated for the specific thesis project with program level approval. Project affiliation approval must be completed prior to commencing research.

View a list of faculty and their affiliations: https://www.kaust.edu.sa/en/study/faculty/faculty-advisors-by-program-areas

4.3 Ph. D. Candidacy
In addition to the coursework requirements, the student must successfully complete the required PhD Qualification Milestones to progress towards Ph.D. candidacy status. These milestones consist of the Subject based Qualifying Examination and Ph.D. proposal defense.

4.3.1 Subject-based Qualifying Exam
The purpose of the Subject-based Qualifying Exam is to test the student's knowledge of the subject matter within the field of study. All students entering the Ph.D. program with a B.S. degree must take this examination within two years of their admission. Students admitted to the program with an M.S. degree must take this exam within one year. Students who fail the Subject-based Qualifying Exam with no retake or fail the retake will be dismissed from the university.

4.3.2 Ph.D. Dissertation Proposal Defense Committee
Formation of Dissertation Proposal Defense Committee: must include the following members:

- First member: Dissertation Advisor who acts as committee chair.
- Second member: Program or Program-affiliated faculty member.
- Third member: KAUST faculty member from another program.

The Proposal Dissertation Committee must be approved by the Dean. Once constituted, the composition of the Proposal committee can only be changed with the approval of both the Dissertation Advisor and the Dean.

View a list of faculty and their affiliations: https://www.kaust.edu.sa/en/study/faculty/faculty-advisors-by-program-areas

4.3.3 Ph.D. Dissertation Proposal Defense
The purpose of the Dissertation Proposal Defense is to demonstrate that the student has the ability and is adequately prepared to undertake Ph.D. level research in the proposed area. This preparation includes necessary knowledge of the chosen subject, a review of the literature and preparatory theory or experiment as applicable.

The Dissertation Proposal Defense is the second part of the qualification milestones that must be completed to become a Ph.D. Candidate. Ph.D. students are required to complete the Dissertation Proposal Defense within one year after passing the qualifying exam. The Dissertation Proposal Defense includes two aspects: a written research proposal and an oral research proposal defense. Ph.D. students must request to present the Dissertation Proposal Defense to the Proposal Dissertation Committee at the beginning of the semester they will defend their proposal.

There are four possible outcomes from this Dissertation Proposal Defense:

- Pass
- Pass with conditions
- Fail with retake
- Fail without retake

A pass is achieved when the committee agrees with no more than one dissenting vote, otherwise the student fails. In the instance of a Pass with conditions, the entire committee must agree on the required conditions and if they cannot, the Dean decides. The deadline to complete the conditions is one month after the defense date, unless the committee unanimously agrees to change it.
In the instance of a Fail without Retake, the decision of the committee must be unanimous. The deadline to complete the retake is six months after the defense date, unless the committee unanimously agrees to reduce it. Students who fail the Dissertation Proposal Defense, or who fail the retake, will be dismissed from the University.

A student who successfully passes the Dissertation Proposal Defense is deemed a Ph.D. Candidate.

### 4.4 Ph.D. Defense

To graduate, a Ph.D. candidate has to form a Ph.D. dissertation defense committee, finalize the Ph.D. dissertation and successfully defend his/her Ph.D. dissertation.

### 4.4.1 Ph.D. Dissertation Defense Committee

The Ph.D. Dissertation Defense committee, which must be approved by the student’s Dean, must consist of at least four members and typically includes no more than six members. At least three of the required members must be KAUST faculty and one must be an examiner who is external to KAUST. The Chair, plus one additional faculty member, must be affiliated with the student’s program. The external examiner is not required to attend the defense, but must write a report on the dissertation and may attend the dissertation defense at the discretion of the Program. This membership can be summarized as:

<table>
<thead>
<tr>
<th>Member</th>
<th>Role</th>
<th>Program Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chair</td>
<td>Within Program</td>
</tr>
<tr>
<td>2</td>
<td>Faculty</td>
<td>Within Program</td>
</tr>
<tr>
<td>3</td>
<td>Faculty</td>
<td>Outside Program</td>
</tr>
<tr>
<td>4</td>
<td>External Examiner</td>
<td>Outside KAUST</td>
</tr>
<tr>
<td>5</td>
<td>Approved Research Scientist</td>
<td>Inside KAUST</td>
</tr>
<tr>
<td>6</td>
<td>Additional Faculty</td>
<td>Inside or outside KAUST</td>
</tr>
</tbody>
</table>

**Notes:**
- Members 1 – 4 are required. Members 5 and 6 are optional.
- Co-chairs may serve as either Member 2, 3 or 6.
- Adjunct Professors and Professor Emeriti may retain their roles on current committees, but may not serve as chair on any new committees.
- Professors of Practice and Research Professors may serve as Members 2, 3 or 6 depending upon their affiliation with the student’s program. They may also serve as co-chairs.
- Visiting Professors may serve as Member 6, but not as the external examiner.

The only requirement with commonality with the proposal committee is the supervisor, although it is expected that other members will carry forward to this committee. The supervisor is a non-voting member on the committee.

If the student has a co-supervisor this person can be considered one of the above four members required, provided they come under the categories listed (i.e., meets the requirements of position).

It is the responsibility of the student to inform the Dissertation Defense Committee of his/her progress, deadlines for submitting graduation forms, the defense date, etc. It is expected that the student submits her/his dissertation six weeks prior the defense date in order to receive feedback from the committee members in a timely manner.
4.4.2 Ph.D. Dissertation Defense

The Ph.D. degree requires the passing of the defense and acceptance of the Dissertation. The final defense is a public presentation that consists of an oral defense followed by questions and may last a maximum of three hours.

The student must determine the defense date with agreement of all the members of the Dissertation Committee. It is the responsibility of the student to notify and submit the required documents to the Graduate Program Coordinator at the beginning of the semester they intend to defend. It is also expected that the student submits their written dissertation to the committee two months prior to the defense date in order to receive feedback. The written dissertation is required to comply with the university formatting guidelines provided by the library [http://libguides.kaust.edu.sa/theses](http://libguides.kaust.edu.sa/theses).

There are four possible outcomes from this Dissertation Final Defense:

- Pass
- Pass with conditions
- Fail with retake
- Fail without retake

A pass is achieved when the committee agrees with no more than one dissenting vote, otherwise the student fails. If more than one member casts a negative vote, one retake of the oral defense is permitted if the entire committee agrees. In the instance of a Pass with conditions, the entire committee must agree on the required conditions and if they cannot, the Dean decides. The deadline to complete the revisions is one month after the defense date, unless the committee unanimously agrees to reduce it. The deadline to complete the retake is four months after the defense date, unless the committee unanimously agrees to reduce it. Students who fail the Dissertation Defense or who fail the retake will be dismissed from the university.

Evaluation of the Ph.D. Dissertation Defense is recorded by submitting the Result of Ph.D. Dissertation Defense Examination form within three days after the defense.
5. Program Courses and Descriptions

CBE 201: Chemical Thermodynamics (3-0-3)
Prerequisites: Undergraduate thermodynamics course.
The primary goal of chemical thermodynamics is the physical explanation of the fundamental principles governing the variety of chemical phenomena taking place in the work around us. The goal of this course is to give students a conceptual understanding of the main principles of thermodynamics. Topics include: the concept of entropy; the Clausius, Gibbs, Boltzmann and Shannon definition of entropy; entropy and information; Maxwells demon; the Boltzmann distribution law; the Maxwell-Boltzmann speed distribution; Gibbs and Helmholtz free energy; the chemical potential; Gibbs-Duhem and Euler equation; the Gibbs phase rule; entropy of mixing and Gibbs paradox; phase diagrams; the Flory-Huggins phase diagram; spontaneous and non-spontaneous processes; thermodynamics of chemical reactions; thermodynamics of osmosis and reverse osmosis, entropy and irreversible phase transitions; introduction in thermodynamics of irreversible processes; introduction in statistical thermodynamics.

CBE 202 Advanced Transport Phenomena (3-0-3)
Prerequisites: Basic knowledge of fluid mechanics, heat & mass transfer, vector analysis, and differential equations.
The aim of this course is to enable students to i) derive appropriate differential balances for specific material properties, including momentum, thermal energy, and mass species, accounting appropriately for property flux by convective and diffusive (molecular-scale) processes, along with property generation or loss in the material continua; ii) write the Thermal Energy Equation, the Species Continuity Equation, and the Navier-Stokes Equations and pose (simplify) them appropriately for specific transport problems; iii) know appropriate boundary conditions that can be applied to specific transport problems; iv) conduct scale or dimensional analyses of transport problems, using the analyses to help simplify or enhance understanding of underlying transport processes; v) solve and physically interpret one (1)-dimensional steady state conduction and species diffusion problems in rectangular, cylindrical, and spherical geometries, with and without zero-order and first-order generation/loss; vi) use separation of variables technique to solve and physically interpret two (2)-dimensional steady-state conduction and diffusion problems in unbounded material regions; vii) use similarity methods to solve and physically interpret unsteady state conduction and diffusion problems in bounded material regions; viii) use the finite Fourier transform method to solve and interpret unsteady state conduction and diffusion problems in bounded material regions; ix) solve and physically interpret unidirectional unsteady viscous flows in unbounded regions and in bounded regions (i.e. flow conduits or ducts); and x) solve and physically interpret simultaneous convection and diffusion (conduction) problems involving the interaction of thermal or concentration boundary layers with developing or developed velocity profiles.

CBE 203 Advanced Reaction Engineering (3-0-3)
The objective of this course is to impart and to continue the rigorous study of reaction engineering. In this course, particular emphasis will be given to chemical kinetics and transport phenomena, review of elements of reaction kinetics, rate processes in heterogeneous reacting systems, design of fluid-fluid and fluid-solid reactors, scale-up and stability of chemical reactors and residence time analysis of heterogeneous chemical reactors.

CBE 206 Synthetic Biology and Biotechnology (2-1-3)
Introduction to genetic circuits in natural systems; engineering principles in biology; BioBricks and standardization of biological components; numerical methods for systems analysis and design; fabrication of genetic systems in theory and practice; transformation and characterization; examples of engineered systems; hands-on experiments.

CBE 208 Plant Biology (3-0-3)
Review of cellular structure function, diffusion and active transport limitations and benefits on plant cell systems. Membrane structures translocation and transport. Energy and primary metabolism, secondary metabolism in microbes and plants.

CBE 209 Genomics (3-0-3)
Prokaryotic versus eukaryotic genome structure, conservation (gene order/sequence/structure, regulatory sequences), approaches to mapping/sequencing genomes, DNA sequencing, DNA sequencing technologies, approaches to genome annotation, SNPs, microarray technology, gene expression microarrays, antibodies, chromatin immuno-purification, high throughput perturbation studies. Problem-solving/data-handling/critical thinking/journal-club sessions. Possible interactions with Genomics Research Core facility.
CBE 210 Materials Chemistry I (3-0-3)
A presentation of present fundamental concepts in materials chemistry. The main topics to be covered include structure and characterization, macroscopic properties and synthesis and processing.

CBE 215 Polymers and Polymerization Processes (3-0-3)
Cornerstones of polymer science: synthesis, characterization, processing and properties. Monomer synthesis, polymerization chemistry, reactors and scale-up, polymer structure (solution and solid state), morphology and "processability".

CBE 221 Biophysics (3-0-3)
Conservation of mass and momentum, physiological mass transport, membrane structure, carrier proteins and active membrane transport, ion channels, intracellular vesicular transport, diffusion in reacting systems, heat and mass transfer in bioreactors, culture aeration. Lectures and laboratory.

CBE 222 Bioprocess Fundamentals (3-0-3)
Genetic recombination, expression systems, principles of fermentation processes, bioreactor types and operation modes, process scale-up, separation and recovery of biological products. Industrially relevant applications, such as microbial systems, mammalian systems, stem cell systems. Lectures, case studies and laboratory.

CBE 223 Introduction to Statistics and Bio-Statistics (3-0-3)
Probability: random variables, independence, and conditional probability; discrete and continuous distributions, moments, distributions of several random variables. Topics in mathematical statistics: random sampling, point estimation, confidence intervals, hypothesis testing, nonparametric tests, regression and correlation analyses. Applications in engineering, industrial manufacturing, medicine, biology, and other fields.

CBE 224 The Cell: Structure, Development and Physiology I(3-0-3)
Types of microorganisms (e.g., viruses, microbes, yeast, mammalian and stem cells); cell physiology, structure and function; gene expression and protein synthesis; protein folding; post-translational modification; cell cycle; molecular biology techniques.

CBE 225 Materials Chemistry II (3-0-3)
An introduction to electron microscopy based techniques: Scanning electron microscopy (SEM), Transmission electron microscopy (TEM), Electron diffraction (ED), Scanning transmission electron microscopy (STEM), Energy-filtered TEM (EFTEM), Energy dispersive X-ray analysis (EDX), and Electron energy loss spectroscopy (EELS). On-site demonstration of the electron microscope will be given. Nanoporous materials including zeolites and mesoporous materials will be another topic of this course.

CBE 226 Process Modeling and Control (3-0-3)
This course aims at building knowledge in process systems modeling/control. This unit will also enable you to develop a systematic approach to process modeling, control design and controller development and analysis. The course aims at: developing an appreciation for the importance of process models and process control in a chemical plant/process, to see the significance of these in real life and to relate the theory learnt to practice; developing an appreciation for the importance of process models in the development of control theory and practice.

CBE 230/330 Physical Chemistry of Macromolecules (3-0-3)
Conformation and configuration; Solution Thermodynamics; Phase separation (theory and experimental aspects), polymer fractionation; Mechanisms and kinetics of phase separation; Miscibility of polymer blends and compatibilization; Microphase separation and self-assembly; Rheology of polymer solutions; Viscosity of diluted and concentrated solutions, polymer gels; Rheology of polymer melts and composites, relevance for polymer processing; Amorphous state, glass-rubber transition, plasticizers; Elasticity and Viscoelasticity; Thermal analysis, dynamic mechanical analysis; Crystalline state, liquid-crystalline state; Mechanical properties.

CBE 239 Stem Cells (3-0-3)
Stem cell biology and therapeutics. It is intended to provide a comprehensive overview of current understanding of embryonic and adult stem cells, including their basic properties and interactions within organisms. Stem cell isolation methods, experimental models and potential biomedical therapeutic applications will be encountered through research of literature. It is a graduate level course that requires a basic background in biology.
CBE 295 Internship (6 credit)
Master-level supervised research.

CBE 297 MS Thesis Research (variable credit)

CBE 298 Graduate Seminar
Master-level seminar focuses on special topics within the field.

CBE 299 Directed Research (variable credit)
Master-level supervised research.

CBE 301 Computational Biology (3-0-3)
Computational Biology is an advance and practical course, hands-on approach to the field of computational biology. The course is recommended for both molecular biologists and computer scientists desiring to understand the major issues concerning analysis of genomes, sequences and learns large scale modeling of complex systems. Various existing methods will be critically described and the strengths and limitations of each will be discussed. There will be practical assignments utilizing the tools described. Prerequisites include genomics I (B204/CBE209) and genomics II (B204). A final paper will be required for the course that critically and constructively analyzes any area of computational molecular biology, bioinformatics or genomics. The final project may also present a novel application of existing tools or the development of some new or improved method.

CBE 305 Sustainable Engineering (3-0-3)
Engineers face growing pressure to incorporate sustainability objectives into their practice. In comparing two (2) products/designs it is often not apparent which one (1) is more sustainable. The course introduces concepts and method for determining the net environmental, economic, and social impacts of an engineering technology or process. Specific topics include life cycle assessment, cost/benefits analysis, energy auditing, materials accounting, and environmental assessment. These methods are examined and applied to current engineering issues such as global climate change, alternative-fueled vehicles, water and wastewater treatment, urban development, renewable energy (solar, wind, and biomass), and waste mitigation. Each student will be required to apply tools learned to assess the sustainability of a specific engineering system. This is a research-based course and is suitable for students interested in researching in-depth a particular topic. By the end of the course, students will have an awareness of analytical tools/resources for evaluating sustainability employing a systems perspective.

CBE 317 Clean Fossil Fuels and Biofuels (3-0-3)
The different types of biofuels will be presented and discussed in this course. Topics include biomass feedstocks, first, second and third generation of biofuels, fuel from cellulose, catalytic conversion of biomass to liquid, energy balance of biofuels, biological production of hydrogen, biodiesel, microbial fuel cells. The Clean Fossil Fuel part of this course deals with gasification processes including ICCG power plants, Fischer Tropsch synthesis, clean coal technologies, desulfurization and carbon dioxide capture and storage.

CBE 319 Bioinorganic Chemistry (3-0-3)
Chemistry as it is provided by any undergraduate chemistry, biochemistry, biotechnology or chemical engineering education. The more advanced chemical and biochemical aspects and methods are all developed during the course. The course will provide students with a general overview of the many very fundamental tasks performed by inorganic elements in living organisms as well as the related methods and theories with particular emphasis on enzymatic conversions and electron transfer. This goes along with the elucidation of model systems and technical applications of both, concepts learned from nature as well as biological systems.

CBE 326 Biocatalysis (3-0-3)
Application of Biocatalysis has a long tradition. Starting out from basic food-processing fermentations e.g. related to bread baking or cheese making, today the result emerging from this discipline influence all areas of modern daily life. Developments in Pharmacy, medicine, nutrition, analytics, environmental technology, fine chemical synthesis and others are based on the progress in Biocatalysis research. Enzymes as nature's catalysts set the benchmarks for artificial systems in terms of activity and selectivity.
Correspondingly, Biocatalysis has evolved into one (1) of the pillars of biotechnology and chemical industry. This course aims to provide an understanding of fundamental aspects of biocatalysis, while the general focus is set on current applications of biocatalytic systems. It targets Students enrolled in chemical sciences, chemical engineering and biological engineering.

**CBE 336 Membrane Science and Membrane Separation Processes (3-0-3)**


**CBE 390 Special Topics: Chemical Kinetic Modelling and Simulation**

Prerequisite: Advanced Reaction Engineering (CBE203), Advanced Transport Process (CBE202), Chemical Thermodynamics (CBE 201) or similar courses in other programs.

Understanding the oxidation and pyrolysis chemistry of hydrocarbons can aid in developing thermal conversion processes and in improving combustion applications. Optimization of engine performance requires an understanding of how a fuel’s molecular structure affects important combustion properties. The course presents the current state-of-the-art in comprehensive chemical kinetic modeling for gas-phase and liquid-phase reacting flows. The course will cover the development of large databases of chemical reaction pathways with associated kinetic rate parameters, as well as thermochemical and transport properties for all reactant, intermediate, and product species. First, the mapping out of detailed reaction pathways at the temperatures and pressures relevant to chemical reactors and combustion applications will be discussed. Next the art of assigning rate constants using chemical intuition and quantum chemical modeling will be covered. The determination of thermochemical and transport properties is achieved using both molecular modeling tools and empirical methods. The comprehensive models are then validated against data from well-defined experimental configurations using zero-dimensional and one-dimensional reacting flows whose physics can be simulated exactly. These models are finally employed to determine the thermal degradation and oxidation pathways relevant to the prediction of combustion performance in practical applications.

**CBE 397 Ph.D. Dissertation Research (variable credits)**

Ph.D-level research. Leading to a formal written dissertation and oral defense.

**CBE 398 Graduate Seminar**

Doctoral-level seminar focuses on special topics within the field.

**CBE 399 Directed Research (variable credits)**

Doctoral-level supervised research.
6. KAUST University Requirements; Office of the Registrar

King Abdullah University of Science and Technology (KAUST) advances science and technology through bold and collaborative research. It educates scientific and technological leaders, catalyzes the diversification of the Saudi economy and addresses challenges of regional and global significance, thereby serving the Kingdom, the region and the world.

Research and education, as well as their transformative potential, are central to KAUST’s mission. KAUST has a three-part mission:

Research at KAUST – both basic and goal-oriented – is dedicated to advancing science and technology of regional and global impact. Research excellence inspires teaching and the training of future leaders in science and technology.

Research and education at KAUST energize innovation and enterprise to support knowledge-based economic diversification.

Through the synergy of science and technology, with a focus on innovation and enterprise, KAUST is a catalyst for transforming people’s lives.

In support of this mission, King Abdullah University of Science and Technology offers eleven graduate programs leading to M.S. and Ph.D. degrees.

KAUST Offers the Following two Degrees:

The M.S. degree typically takes three semesters and a summer to complete (18 months). The degree allows flexibility for internships, research, and academics. Learn more about M.S. degree requirements.

The Ph.D. degree is typically a three- to four-year post-master’s degree. The Ph.D., involves original research, culminating in a research dissertation. Learn more about Ph.D. degree requirements.

There are three academic divisions:

**Biological and Environmental Science and Engineering (BESE)**
- Bioscience (B)
- Environmental Science and Engineering (EnSE)
- Marine Science (MarS)
- Plant Science (PS)

**Computer, Electrical and Mathematical Science and Engineering (CEMSE)**
- Applied Mathematics and Computational Science (AMCS)
- Computer Science (CS)
- Electrical Engineering (EE)

**Physical Science and Engineering Division (PSE)**
- Chemical and Biological Engineering (CBE)
- Chemical Science (ChemS)
- Earth Science and Engineering (ErSE)
- Materials Science and Engineering (MSE)
- Mechanical Engineering (ME)

Each program is administered by a Graduate Committee and a Graduate Chair. Courses for each program will be listed at the 100 (non-credit), 200, 300 or 400 level.
7. Master’s Program

7.1 Admissions
Admission to the M.S. program requires the satisfactory completion of an undergraduate B.S. degree in a relevant or related area, such as Engineering, Mathematics or the Physical, Chemical and Biological Sciences.

7.2 Master’s Degree requirements
The M.S. degree requires successful completion of 36 credits. Students are expected to complete the M.S. degree in three semesters plus one summer session. Degree requirements are divided into three sections: Core Curriculum; Elective Curriculum; and Research/Capstone Experience.

Core Curriculum (9-15 credits):
This portion of the degree program is designed to provide a student with the background needed to establish a solid foundation in the program area over and above that obtained through undergraduate studies.

Elective Curriculum (9-15 credits):
This portion of the degree program is designed to allow each student to tailor his/her educational experience to meet individual research and educational objectives. Depending upon the program and the objectives, this may be met by added coursework or by additional research experience.

Research/Capstone Experience (12 credits):
The details of this portion of the degree program are uniquely determined by the student and his/her advisor and will involve a combination of research and other capstone experiences that build on the knowledge gained in coursework. Satisfactory participation in KAUST’s Summer Sessions and Winter Enrichment Program (WEP) is mandatory. Summer Session courses are credit bearing and apply toward the degree. WEP courses do not earn credit towards the degree.

At least thirty-six (36) degree credits must be completed in graduate-level courses and research projects. These courses should be 200-level or above and must be approved by the student’s advisor. Additional non-credit bearing activities, such as graduate seminars may be required by the Program. Details on the specific program expectations, as well as the difference between the thesis and non-thesis degree options can be found through the link in the Program Guide: (http://www.kaust.edu.sa/academics/programs/degrees.html).

View a list of faculty and their affiliations: https://www.kaust.edu.sa/en/study/faculty/faculty-advisors-by-program-areas

7.2.1 Thesis Requirements
Students wishing to pursue a thesis as part of their M.S. degree, must identify a research advisor and must file for thesis status. The application for the thesis option is due to the Registrar’s Office by the ninth week of the student’s second semester at KAUST. Criteria for Acceptance into the Master’s Degree with Thesis program. Students should have a well-constructed thesis proposal that includes a time-line for completion. The thesis proposal must be approved by the research advisor and the Dean of the Division.

In the case of an optional thesis program, the student should have a minimum GPA of 3.2 and at least 12 credit hours completed at the end of the third semester. Alternatively, the faculty member agrees to a longer time frame, not to exceed the end of the fourth semester and to cover the student and experimental costs that accrue during this period.

The student’s program of study should be structured such that the student may change to the M.S. without Thesis option and finish the degree by the end of the student’s third semester.

Thesis Defense
Evaluation of satisfactory completion of M.S. thesis work is performed by the M.S. Thesis Defense Committee

The evaluation of M.S. thesis credits comprises of a satisfactory or unsatisfactory grade. The requirement of a public seminar based on the student’s work is left to the discretion of the M.S. thesis advisor.

The student is responsible for scheduling the thesis defense date with his/her supervisor and committee members. It is advisable that the student submits a written copy of the thesis to the thesis committee members at least two weeks prior the defense date.

M.S. Thesis Defense Committee
The M.S. Thesis Defense committee, which must be approved by the student’s Dean, must consist of at least three members, and typically includes no more than four members. At least two of the required members must be KAUST faculty. The Chair plus one additional faculty member must be affiliated with the student’s program. This membership can be summarized as:

<table>
<thead>
<tr>
<th>Member</th>
<th>Role</th>
<th>Program Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chair</td>
<td>Within Program</td>
</tr>
<tr>
<td>2</td>
<td>Faculty</td>
<td>Within Program</td>
</tr>
<tr>
<td>3</td>
<td>Faculty or Approved Research Scientist</td>
<td>Outside Program</td>
</tr>
<tr>
<td>4</td>
<td>Additional Faculty</td>
<td>Inside or outside KAUST</td>
</tr>
</tbody>
</table>

Notes
Members 1 – 3 are required. Member 4 is optional. Co-chairs may serve as Member 2, 3 or 4, but may not be a Research Scientist. Adjunct Professors and Professor Emeriti may retain their roles on current committees, but may not serve as chair on any new committees. Professors of Practice and Research Professors may serve as Members 2, 3 or 4 depending upon their affiliation with the student’s program. They may also serve as co-chairs. Visiting Professors may serve as Member 4.

7.2.2 Non-Thesis Option
Students wishing to pursue the Non-Thesis options must complete a minimum of 6 credits of directed research (299). Summer internship credits may be used to fulfill the research requirements provided that the summer internship is research-based. Summer internships are subject to approval by the student’s academic advisor.

Students must complete the remaining credits through one or a combination of the options listed below:

- Broadening Experience Courses: Courses that broaden a student’s M.S. experience.
- Ph.D.-Level Courses: Courses numbered 300 or greater. Any course in the Ph.D. core requirements that is passed with a minimum grade of B- may be used towards meeting the core Ph.D. requirements of the program if the student chooses to continue for a Ph.D. degree in KAUST.
- Internship: Research-based summer internship (295). Students are only allowed to take one internship.

It should be noted that a student may also combine courses to satisfy the six credit requirement. For example, a student could take one Ph.D.-level course and one graduate-level course in another program. A student may not enroll in two summer internships.

Students may select a KAUST faculty member from another program to act as a research advisor (for either thesis or directed research), but must provide a one-page description of the research and an explanation of how such research would be relevant.
to the degree program. Upon approval by the program and the Dean, the faculty member would be allowed to act as an affiliated faculty member and advisor for the student.

Please Note: Degree Programs may have additional requirement to those listed above.

View a list of faculty and their affiliations: https://www.kaust.edu.sa/en/study/faculty/faculty-advisors-by-program-areas

8. Ph.D. Program

8.1 Admissions
Ph.D. students apply for and enter a specific degree program. A faculty advisor is either immediately designated (in the case of a student being recruited by a specific faculty member) or temporarily assigned; in the latter case, the student is expected to identify a research advisor by (at the latest) the end of the first year.

There are three phases and associated milestones for Ph.D. students:

- Passing a qualifying exam
- Passing an oral defence of the dissertation proposal
- Dissertation phase with a final defense milestone.

8.2 Ph.D. Degree Requirements
There is a minimum residency requirement (enrolment period at KAUST) of 2.5 years for students entering with an M.S. degree, 3.5 years for students entering with a B.S. degree. Qualification and advancement to candidacy are contingent upon: (i) successfully passing Ph.D. coursework, (ii) designating a research advisor, (iii) successfully passing a qualifying exam, and (iii) writing and orally defending a research proposal. Possible outcomes include pass, failure with complete retake, failures with partial retake, and failure with no retake. Students not permitted to retake the exam, or who fail the retake, will be dismissed from the University. The maximum allotted time for advancement to candidacy for a student entering with a M.S. degree is one (1) year after the passing of qualifying exam; two (2) years for students entering with a B.S.

Satisfactory participation in KAUST’s Summer Session and Winter Enrichment Period (WEP) is mandatory. Summer Session courses are credit bearing and apply towards the degree. WEP courses do not earn credit towards the degree.

The required coursework is outlined below and see program for specific program course requirements:

M.S. Degree
- Core courses
- Elective courses

Ph.D. Degree
- Two (2) or more courses(6 credits of coursework) at 300 level
- Graduate Seminar if required by the program

Students entering the program with a relevant M.S. from another institution may transfer coursework toward the requirements of the M.S. degree listed above upon approval of the program.

Students entering the program with a M.S. from KAUST may transfer coursework toward both the M.S. and Ph.D. requirements listed above upon approval of the program and based on their program of study at KAUST.

Students entering with a B.S. from another institution may transfer in up to 9 credits of graduate level coursework towards the
above requirements upon approval of the program. In addition, students entering with a B.S. may also qualify to earn a M.S. degree by satisfying the M.S. degree requirements as part of the Ph.D. program.

Some degree programs may require a diagnostic entrance exam as a basis for admission, and students may be required to complete additional coursework depending on their degree-granting institution. If the M.S. degree is from a subject other than the Ph.D. degree program, there may be additional courses required and specified by the advisor.

8.3 Candidacy
Achieving Ph.D. candidacy is contingent upon successfully passing a qualifying examination, acceptance by the research advisor of a written research proposal and successfully passing an oral examination. Details should be confirmed in the individual degree program material.

View a list of faculty and their affiliations: https://www.kaust.edu.sa/en/study/faculty/faculty-advisors-by-program-areas

Passing the qualification phase is achieved by acceptance of all committee members of the written proposal and a positive vote of all but, at most, one member of the oral exam committee. If more than one member casts a negative vote, one retake of the oral defense is permitted if the entire committee agrees. A conditional pass involves conditions (e.g. another course in a perceived area of weakness) imposed by the committee, with the conditional status removed when those conditions have been met. Once constituted, the composition of the qualification phase committee can only be changed upon approval by both the faculty research advisor and the division dean.

8.4 Dissertation Research Credits
Besides coursework (6 or more credit hours), dissertation research (course number 397) must be earned during the first (proposal preparation and defense) and second phases of the Ph.D. program. A full-time workload for Ph.D. students is considered to be 12 credit hours per semester (courses and 397) and 6 credit hours in summer (397 only). There is a minimum residency requirement (enrolment period at KAUST) of 2.5 years for students entering with an M.S. degree, 3.5 years for students entering with a B.S. degree. Ph.D. students typically complete the degree in 5 years.

8.5 Dissertation and Dissertation Defense
The Dissertation Defense is the final exam of the Ph.D. degree. It involves a public presentation of the results of the dissertation research followed by a question and answer session by the Ph.D. Dissertation Defense Committee. It is the responsibility of the student to inform the dissertation committee of his/her progress and meet deadlines for submitting defense date and graduation forms. It is expected that students will submit their dissertations to their committee six weeks prior to the defense date in order to receive feedback from the committee members in a timely manner. However, the advisor may approve exceptions to this expected timeline. The dissertation format requirements are described in the KAUST Thesis and Dissertation Guidelines. http://libguides.kaust.edu.sa/theses

The result of the defense will be made based on the recommendation of the committee. There are four (4) possible results: Pass: the student passes the exam and the dissertation is accepted as submitted; Pass with revisions: the student passes the exam and the student is advised of the revisions that must be made to the text of the dissertation; Failure with retake: normally this means the student must do more research to complete the dissertation. The student must revise the dissertation and give another oral examination within four (4) months from the date of the first defense; and (4) Failure: the student does not pass the exam, the dissertation is not accepted, the degree is not awarded, and the student is dismissed from the University.

8.6 Ph.D. Dissertation Defense Committee
The PhD Dissertation Defense committee, which must be approved by the student’s Dean, must consist of at least four members, and typically includes no more than six members. At least three of the required members must be KAUST faculty and one must be an examiner who is external to KAUST. The Chair plus one additional faculty member must be affiliated with the student’s program. The external examiner, is not required to attend the defense, but must write a report on the dissertation and may attend the dissertation defense at the discretion of the Program. This membership can be summarized as:
Member Role Program Status:

<table>
<thead>
<tr>
<th>Member</th>
<th>Role</th>
<th>Program Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chair</td>
<td>Within Program</td>
</tr>
<tr>
<td>2</td>
<td>Faculty</td>
<td>Within Program</td>
</tr>
<tr>
<td>3</td>
<td>Faculty</td>
<td>Outside Program</td>
</tr>
<tr>
<td>4</td>
<td>External Examiner</td>
<td>Outside KAUST</td>
</tr>
<tr>
<td>5</td>
<td>Approved Research Scientist</td>
<td>Inside KAUST</td>
</tr>
<tr>
<td>6</td>
<td>Additional Faculty</td>
<td>Inside or outside KAUST</td>
</tr>
</tbody>
</table>

Notes
Members 1 – 4 are required. Members 5 and 6 are optional. Co-chairs may serve as either Member 2, 3 or 6. Adjunct Professors and Professor Emeriti may retain their roles on current committees, but may not serve as chair on any new committees. Professors of Practice and Research Professors may serve as Members 2, 3 or 6 depending upon their affiliation with the student’s program. They may also serve as co-chairs. Visiting Professors may serve as Member 6, but not as the external examiner.

It is the responsibility of the student to inform the dissertation committee of his/her progress and meet deadlines for submitting defense date and graduation forms. It is expected that students will submit their dissertations to their committee six (6) weeks prior to the defense date in order to receive feedback from the committee members in a timely manner. However, the advisor may approve exceptions to this expected timeline. The dissertation format requirements are described in the KAUST Thesis and Dissertation Guidelines. http://libguides.kaust.edu.sa/theses

9. Program Descriptions
The Master’s and Doctoral degree program requirements listed above represent general university-level expectations. The specific details of each degree requirements are outlined in the descriptions of the individual degree programs.

Course Notation
Each course is listed prefaced with its unique number and post fixed with (l-c-r) where:
l is the lecture hours, to count toward fulfilling the student workload during a semester.
c is the recitation or laboratory hours.
r is the credit hours toward fulfilling a degree course requirement.

9.1 University Wide Courses
University-wide courses are courses in areas not tied to any specific degree program. They are designed to meet institutional requirements, provide broadening experiences or to provide supplemental preparation to support students in support of their degree. These are listed below.

9.1.1 English as a Second Language
These courses are designed to provide English language training for student who do not fully meet the university’s English language entrance requirements and students will be assigned based on the student’s level of English or proficiency.
ESL 101 English as a Second Language I (6-0-0)
ESL 101 is a foundational English skills course for reading, listening, speaking and writing. The course has a strong focus on teaching students the basics of academic writing and grammar structures in preparation for thesis work. Course materials are typically A2 level to help students acquire basic academic English skills required for graduate course work.

ESL 102 English as a Second Language II (3-0-0)
ESL 102 is a pre-intermediate English skills course for reading, listening, speaking and writing. The course continues to focus on building academic writing and grammar skills and also more emphasis on reading for academic purposes. Course materials are typically B1 level to help students further develop pre-intermediate English skills required for graduate course work.

ESL 103 English as a Second Language III  (3-0-0)
ESL 103 is an upper-intermediate English skills course for reading, listening, speaking and writing. The course helps to further develop academic English skills necessary to successfully complete research and thesis work. Course materials are typically B2 level to help students refine upper-intermediate English skills required for graduate course work.

9.1.2 Enrichment Program WEP Courses
The Winter Enrichment Program (WEP) takes place in January each year and is designed to broaden student’s horizons. WEP is an essential and core requirement of the degree programs at KAUST. Satisfactory completion of at least one WEP is required of all MS students as part of completion of the degree requirements. PhD students who did not receive their MS degree at KAUST are also required to satisfactorily complete at least one WEP. To satisfy this mandatory requirement, full participation must occur within a single WEP period.

9.1.3 Innovation and Economic Development
IED 210 Technology Innovation and Entrepreneurship (3-0-3)
This course introduces students to using an entrepreneurial and design thinking view to solving real world challenges including the pathway to commercializing research. It is about changing methods of thinking and equipping graduate students to be able to understand and manage innovation in the corporate world. This course is open to all MS students as an elective and to PhD students with permission of their academic advisors.

9.1.4 IED 220 New Venture and Product Innovation Challenge (6-0-6)
This is an experiential, industry mentor-led program: this course will enable students to ‘learn-by-doing’ through the development a fully formed business proposition for real intellectual property that has been developed in the Kingdom. The objective is to create a plan for commercialization and launch of a new product and/or new venture. The process will include students learning how to Creatively View Technology Opportunities; the Identification and Assessment of Opportunity: the Structuring and Packaging of a Validated Commercial Idea. In addition students will learn key skills including the development of real-world Strategy, Planning & Team Building: Integrating Continuous Feedback and Communicating Key Concepts to Different Audiences.

10. Grading
The KAUST grading system is a 4.0 scale utilizing letter grades, and these are the only grades that will be assigned.

<table>
<thead>
<tr>
<th>Grade</th>
<th>4.00</th>
<th>3.67</th>
<th>3.33</th>
<th>3.00</th>
<th>2.67</th>
<th>2.33</th>
<th>2.00</th>
<th>1.67</th>
<th>1.33</th>
<th>1.00</th>
<th>0.67</th>
<th>0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised 24 APRIL 2017
10.1 Incomplete Grades
Students who complete the majority of the requirements for a course but are unable to finish the course may receive an incomplete (I) grade. A grade of Incomplete will be assigned only with the consent of the instructor of the course after the instructor and the student have agreed on the academic work that needs to be completed and the date it is due (but no later than the end of the second week of the following semester or session). When the requirements for the course are completed, the instructor will submit a grade that will replace the incomplete grade on the student's academic record. Incompletes not completed by the end of the second week of the following semester or session will be changed to F (failing) grades.

Grades for students that are due to graduate:

Note that any incomplete grades (as well as fail grades) will mean a student will not graduate or receive a diploma during the Commencement ceremony.

Incomplete grades are granted to individual students on a case-by-case basis. Incomplete grades should not be used as a mechanism to extend the course past the end of the semester. Students are allowed only one incomplete grade while in a degree program at KAUST.

10.2 In Progress Grades
Thesis Research (297) or Dissertation Research (397) should be graded as IP (In Progress) or U (unsatisfactory) for each semester. (These IP grades will be converted by the Registrar's Office to “S” grades for all semesters, once the Office has been notified that the thesis or dissertation has been submitted to the Library).

10.3 Research or Seminar courses
Use the following grades for these research or seminar courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Grade Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>297</td>
<td>Thesis Research</td>
<td>Either IP or U</td>
</tr>
<tr>
<td>397</td>
<td>Dissertation Research</td>
<td>Either IP or U</td>
</tr>
<tr>
<td>295/395</td>
<td>Internship (summer)</td>
<td>Either S or U</td>
</tr>
<tr>
<td>298/398</td>
<td>Seminar</td>
<td>Either S or U</td>
</tr>
<tr>
<td>299/399</td>
<td>Directed Research</td>
<td>Either S or U</td>
</tr>
</tbody>
</table>

Summer Session and Winter Enrichment Program:
Satisfactory participation in KAUST's Summer Session and Winter Enrichment Period (WEP) is mandatory. Summer Session courses are credit bearing and apply toward the degree. WEP courses do not earn credit towards the degree.

10.4 Cumulative Grade Point Average
A minimum GPA of 3.0 must be achieved in all coursework. Individual courses require a minimum of a B- for course credit.

11. Academic Standing
A student's academic standing is based on his/her cumulative performance assessment and a semester performance based on the number of credits earned and GPA during the most recently completed semester.

Academic standing classifications are divided into four categories of decreasing levels of academic performance: Good Standing; Academic Notice; Academic Probation; and Academic Dismissal.
Cumulative Assessment

GPA            Academic standing
3.00 – 4.00    Good Standing
2.67 – 2.99    Academic Notice
2.33 – 2.66    Academic Probation
Below 2.33     Academic Dismissal

S/U Performance Academic Standing
0 – 2 credits  GPA Standing
3 – 5 credits  GPA Standing less one category
6 – 8 credits  GPA Standing less two categories
9+ credits     Academic Dismissal

Semester Assessment
Registered in 12 credits
Credits Earned Academic Standing
12+ credits GPA Standing
9-11 credits GPA Standing less one category
6- 8 credits GPA Standing less two category
0- 5 credits  Academic Dismissal

Semester Assessment
Registered in 9 credits
Credits Earned Academic Standing
9 + credits GPA Standing
6 – 8 credits GPA Standing less one category
3 – 5 credits GPA Standing less two category
0 – 2 credits  Academic Dismissal

Summer Session Assessment
Credits Earned Academic Standing
6 credits GPA Standing
3 – 5 credits GPA Standing less one category
0 – 2 credits GPA Standing less two categories
Definitions

**Good Standing**
Student is making satisfactory academic progress toward the degree.

**Academic Notice**
Student is not making satisfactory progress toward the degree. A student placed on Academic Notice will be monitored in subsequent semesters to ensure satisfactory progress toward the degree (see Good Standing). If the student’s performance does not improve in the following semester, the student will be placed on academic probation.

**Academic Probation**
Student is not making satisfactory progress toward the degree. A student placed on Academic Probation will be monitored in subsequent semesters to ensure satisfactory progress toward the degree (see Good Standing). If the student’s performance does not improve in the following semester, the student will be academically dismissed.

**Academic Dismissal**
Student is not making satisfactory progress toward the degree and is unlikely to meet degree requirements. Dismissed students will be required to leave the University. If deemed eligible, dismissed students will have one week from receiving notice of dismissal to file an appeal.

**Appeal Process for Students Academically Dismissed**
If the student is eligible to appeal, he/she must submit a written explanation why the dismissal should be rescinded along with any supporting documentation. The Committee on Academic Performance will hear the appeal and make a decision to grant or deny the appeal based on the appeal and documentation, the student’s past performance, and the likelihood that the student is capable of successfully completing his/her academic program. If the appeal is denied, the student will be required to leave the University. The decision of the Committee is final; no additional appeals are permitted.

**S/U Protection**
Due to the significant impact of U grades, a faculty member giving a U grade for a course involving 6 or more credits must obtain concurrence of the Dean prior to submitting the grade. If the grade is given for only a single class (including research credit) the number of credits will be capped at 6 when using the academic standing table displayed above.

**Returning to Good Standing**
A student not in good standing due to a GPA deficiency may return to Good Standing by improving his/her cumulative GPA such that it meets or exceeds 3.00. A student not in good standing due to U grades may return to Good Standing by completing at least 12 credits during the subsequent semester with no U grades and a semester GPA of at least 3.00 in traditionally graded courses.

**12. Transferring Credits**
A student may petition to transfer graduate credits from another university, upon approval of the Program Chair and the Registrar. Each student’s application will be reviewed on a case-by-case basis. The following rules apply:

Up to three graduate-level courses not to exceed nine credits may be transferred for credit. Courses transferred for credit cannot have been counted as credits for another granted degree. The course grade for any course to be transferred must be a B or above.
Courses transferred for degree credit must have been taken within three years prior to admission to KAUST. The student must submit a completed KAUST Transfer of Credit form and include the Course syllabus and course description.

- The student is responsible for supplying an official transcript:
- The transcript may be no more than three months old.
- The transcript must be in English or accompanied by a certified English translation.
- The grading key must be included with the transcript.
- The transcript must include the course name, level, grade and credit value.
- The credit value of the course must be equivalent to a minimum of three KAUST credit hours.

**Course Transfer and Equivalency:**

Graduate credit hours taken from any KAUST program may be applied to other KAUST graduate programs under the guidelines of the degree program to which the student is admitted. Graduate courses taken from another university or KAUST program that are equivalent in level and content to the designated courses in a major track may be counted toward meeting the major track requirement if their equivalence is confirmed by the program chair.

Students transferring from other Ph.D. programs may receive some dissertation research and coursework credit units, on a case-by-case basis, for related work performed at their original institution. However, such students must satisfy the written and oral requirements for a research proposal (if the proposal had been submitted and approved at the original institution, the proposal may be the same, if approved by the research advisor). The minimum residency requirement for enrolment of such students at KAUST is two years.

**13. Policy for Adding and Dropping Courses**

A course may be added during the first week of the semester. Students may add courses after the first week with the permission of the instructor. Instructors have the right to refuse admission to a student if the instructor feels that the student will not have the time to sufficiently master the material due to adding the course late. A course may be dropped without penalty at any time during the first two weeks of the semester. Between the second and ninth week, students can drop a course but the course will appear on the student's transcript with the grade of “W” (withdraw). After the ninth week of a full semester, courses may be dropped only under exceptional circumstances and with the approval of the Course Instructor, the Program Chair and the Registrar.

**14. Program Planning**

It is the sole responsibility of the student to plan her/his graduate program in consultation with her/his advisor. Students are required to meet all deadlines. Students should be aware that most core courses are offered only once per year.